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ORIGINAL ARTICLES.

A SERIES OF CASES PRESENTING MINOR LESIONS IN THE MACULA LUTEA.

Read in the Section of Ophthalmology at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

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The lesions of the macula lutea which result from myopia, nephritis and diabetes, anæmia and cardiac disease are well known. Haab (Internationaler Ophthalmologen-Congress, Heidelberg, 1888) has classified the remaining diseases of the macula into several groups:

1. Those due to trauma (*a*) by contusion of the globe without rent in the sclera (*commotio retinæ*, of Berlin); (*b*) secondary to penetrating foreign bodies; (*c*) secondary to a neighboring rupture of the choroid.

2. Those characterized by the general term senile macular disease.

3. Those seen in people of depressed nutrition —anæmia, diseases of the stomach, etc.—having at the same time an hereditary disposition to macular disease; and finally,

4. Those in which no etiological factor within or without the eye is discoverable.

In the groups just referred to, at least in the majority of them, a marked failure of central vision is a characteristic symptom. In the series of cases to which I beg your attention for a few moments full acuity of vision is present; general disease in most instances is absent; trauma and other local ocular changes are wanting, and with propriety they may be referred to Haab's fourth group in which no etiological factor within or without the eye is discoverable, that is discoverable in the sense that it is not possible to point with certainty to any one determining cause. These small lesions have certain features in common. They vary in size from one to four diameters of a retinal vein. Usually they are somewhat oval or irregularly round in shape, of varying tints, for the most part grayish-white, or buff-colored, sometimes more decidedly yellow, occasionally associated with some granular pigment, or composed of small collections of yellow and black granulations. Their situation is usually either above or to the temporal side of the fovea in the macular region, and if in relation to any vessels they lie beneath them. For the convenience of study these cases may be classified into several groups:

GROUP 1.—*Asymmetrical lesion—situated in the macular region of the eye presenting the greater error of refraction.*

Case 1.—D. N., a young man aged 19; very nervous; hard student; no general disease. Large irregular discs; many lymph reflexes. In the left eye up and in from the fovea a small oval patch of retino-choroiditis composed of yellowish and black granules interspersed, lying upon a buff-colored background. In the right eye no similar change. O. D. + .50s ⅓. O. S. + 1.s ⅓.

Case 2.—Miss M. B., a woman aged 55; blepharitis; unsatisfactory reading power; general health perfect; urine negative. In each eye healthy, oval optic discs. In the left eye a patch 3 by 4 mm. below the fovea characterized by yellow dots and a few pigment granules lying upon a yellowish-white surface. In the right eye no macular changes. O. D. + .75s ⅓. O. S+1. s ⅓.

Case 3.—Miss M., a woman aged 35; chronic conjunctivitis; typical asthenopia; bad occipital headaches; suffers much from dyspepsia, and has post-nasal catarrh. Oval discs and hazy retinas. In left macula a small, square, buff-colored spot in the choroid below the fovea. No similar change in the right eye. O. D. + .50s ◯ — 2.c axis H. ⅓. O. S. + .25s ◯ — 2.50c axis 5 ⅓.

Case 4.—Miss C., aged 20; suffers much with trigeminal neuralgia; hair prematurely gray; dreads light; has occipital headache; otherwise health good, although excessively nervous. In the right eye an oval disc; retina slightly hazy, and below the fovea a patch of choroidal change about 3 mm. square containing in its centre a cholesterin crystal. In the left eye a nearly round disc, rather pallid, no macular change. O. D. + .50s ◯ + .60c axis V. ⅓. O. S. + .50c axis V. ⅓.

Case 5.—N. B., a man aged 46; for three months has had running ears; successive attacks of conjunctivitis; at times occipital headache; giddy spells;

ill-defined history of rheumatism. In the right eye a horizontally oval gray disc; small buff-colored patch below fovea. In the left eye similar disc with absorption of the pigment epithelium of the choroid, but no macular change. O. D. + 1. s ◯ .90c axis 165 ⅓. O. S. + 1.s ◯ + .25c axis H. ⅓.

Case 6.—Miss P., aged 39; itching and burning eyes; post-ocular pain, worse in right eye; has catarrhal pharyngitis; is deaf in the right ear. In the right eye an oval disc, below the fovea a small buff-colored spot containing a dark centre. In the left eye a normal disc without macular changes. O. D. + .75s ◯ + .60c axis V. ⅓. O. S. + .50s ◯ + .50c axis V. ⅓.

Case 7.—Mrs. M., age 35; frequent attacks of headache through brow and temple, aggravated by eye-work. Family physician sends report of perfect general health. In the right eye an oval disc, its surface too capillary. In the left eye an oval over-capillary disc; full lymph sheaths, and above the fovea an irregularly oval patch, yellowish, and studded with numerous darker tinted dots. O. D. + .50s ◯ + .50c axis V. ⅓. O. S. + .90s ◯ + 1.c axis V. ⅓.

Case 8.—Miss McF., aged 31; burning eyes; blurred print; bad frontal headache; has had rheumatism; no gout; otherwise healthy. In the right eye a large irregular disc; broad scleral ring, and intensely granular macula, and to the outer side of the fovea an irregular buff-colored patch in the choroid. In the left eye a round disc with broad scleral ring. No macular changes. O. D. 2.50s ◯ + .50c axis 75 ⅓. O. S. 2.s ◯ + .50c axis V. ⅓.

Case 9.—Miss S., aged 46; suffers much with eye pain and headache; is in delicate health, and hair prematurely gray. In the right eye an oval disc bounded by a black line, and below the fovea a small oval patch yellowish-white in color. In the left eye a round disc with a shallow central excavation and sharply marked scleral ring. No macular change. O. D. + .75s ◯ + .60c axis 120 ⅓. O. S. + .75s ◯ + .25c axis 60 ⅓.

Case 10.—Mrs. C., aged 58; in perfect general health, and no recent sickness; discs rather gray; veins full, transverse arteries slightly tortuous. In the right eye a small yellowish patch in the macula above and just at the edge of the fovea. In the left eye no similar change. O. D. + .50s ◯ + .50c axis 165 ⅓. O. S. + .75s ◯ + .25c axis H. ⅓.

In this group of ten cases, all with perfect central vision and unaware of any lesions of the eye, general health, with one exception, was good, the well recognized causes of macular disease were absent, a satisfactory reason for the spot of degeneration could not be supplied. It is perhaps suggestive that this occurred upon that side presenting the greater error of refraction. In two the refraction was hypermetropic, and the difference only .50D and .25D respectively; and in the remaining eight there were seven with compound hypermetropic astigmatism in each eye, and one with mixed astigmatism on both sides, the spot being present in the eye exhibiting the greater anomaly of refraction. If instead of presenting ten cases the number had been one hundred or more, such an association would be more than suggestive; as it stands it may be merely a coincidence. I wish, however, to point it out and learn the experience of my colleagues. When we remember that conus and posterior staphyloma have been ascribed to the influence of astigmatism, that refraction error may cause symptomatic retino-choroidal irritation and even superficial neuritis, it may at least reasonably be suggested that slight macular changes may arise under the influence of anomalous refraction and in asymmetrical cases appear in the more affected eye. Bearing somewhat upon this question is the well known fact, and one that I have often observed in this very series of cases, that under the influence of correction such superficial lesions slowly subside, just as the general irritable condition of the whole eye-ground will disappear through similar treatment.

Still in touch with the present theory of the possible origin of these small lesions under the influence of an error of refraction are those which I have gathered into the second group.

GROUP 2.—*Symmetrical macular changes—symmetrical refraction error.*

Case 1.—Mrs. R., aged 40; much sick headache; very nervous; limbs swell (hysterical); heart and urine normal. In each eye oval discs with hazy edges. In the right eye a small crescent-shaped patch, buff-colored, below and to the temple side of the fovea. In the left eye streaks in the macula and one small buff-colored spot above. O. D. + 1.50c axis 105 ⅓. O. S. + 1.50c axis 75 ⅓.

Case 2.—Mrs. B., aged 44; headaches for years; severe hemicrania without prodromes; of feeble muscular strength; urine normal. In the right eye sharply marked scleral ring around an oval disc; several oval, buff-colored patches in the macula somewhat radially placed. In the left eye lower and inner edge of the oval disc hazy. Exactly similar macular changes. O. D. + .50 ◯ —1.c axis 165 ⅓. O. S. + .50 ◯ — 1.c axis 15 ⅓.

Case 3.—W. D., a man aged 34; complains of blurred feeling when reading, lachrymation and smarting pain in the morning, general health perfectly good; organs and functions normal, although his hair is beginning to turn gray. Large, slightly oval, pallid discs with central lymph sheaths full. In each macula above the fovea a buff-colored crescent more marked upon the left side. O. D. + .50s ◯ + .25c axis H. ⅓. O. S. + .50s ◯ + .25c axis H. ⅓.

Case 4.—Mrs. H., aged 42; recent nervous

prostration; occipital and shoulder pain with strained feeling across forehead; reads better in the dusk. In each eye unduly capillary, oval optic discs with hazy retinas and finely tortuous transverse vessels. In each macula slight dot-like changes, and above each fovea a maroon-colored crescentic area. O. D. —.25c axis 135 $\frac{20}{20}$. O. S. — .25c axis 45 $\frac{20}{20}$.

I have quoted four cases to illustrate this point: one an example of simple hypermetropic astigmatism; another of compound hypermetropic astigmatism; a third of mixed astigmatism; and a fourth of simple myopic astigmatism. The lesions are in exact accord with those which have already been described. They differ from the last group in being symmetrical; they resemble the others in being present in people of perfectly good health, or at least in people free from organic disease, and in whom no cause either within or without the eye could be discovered to explain their presence. An exception to this, however, may be Case 4, which in all probability is one of changing refraction, and the spots may have appeared under the influence of this phenomenon.[1]

To illustrate the imperfection of the theory which has been suggested that these slight macular lesions may possibly arise under the influence of refraction error and appear on the side of the greater anomaly, a third group has been quoted in which precisely the opposite condition obtained.

GROUP 3.—*Asymmetrical lesion—situated in the macular region of the eye presenting the smaller error of refraction.*

Case 1.—Miss P., aged 25; suffers from general headache and smarting eyes at close work; rather delicate, but organs sound, the delicate health probably being due to lack of exercise. In each eye oval discs with rather full veins. In the right macula a small patch of choroiditis about 4 mm. square below the fovea. O. D. + 1.25s ◯ .25c axis V. $\frac{20}{20}$. O. S. + 1.50s ◯ + .25c axis V. $\frac{20}{20}$.

Case 2.—Miss S., aged 47; cardiac asthma; has had rheumatism; no renal change, much headache. In each eye oval disc and sharply cut scleral rings. In the right eye a buff-colored patch above in the macula fringing the edge of the fovea. O. D. + .50s ◯ + .60c axis 165 $\frac{20}{20}$. O. S. + 50 ◯ + 1.c axis 15 $\frac{20}{20}$.

Case 3.—Mrs. B., aged 61; general health good; blurred vision; urine normal. In each eye small, oval discs, edges clear. In the left eye two small yellowish-white patches bordering the lower edge of the fovea. O. D. + 2.s ◯ + .90c axis 150 $\frac{20}{20}$. O. S. + 2.s ◯ + .50c axis 60 $\frac{20}{20}$.

Case 4.—Mrs. G., aged 28; brow, vertex, and occipital headache for years, the brow and occipital headache in direct relation to the eyes; general health perfect. In each eye oval discs, rather gray in the outer halves, and in the left eye below the fovea an irregular patch, characterized by numerous yellow dots with some larger buff-colored spots. O. D. + .50s ◯ + .50c axis 105 $\frac{20}{20}$. O. S. + .50 ◯ + .25c axis 75 $\frac{20}{20}$.

These four cases, chosen from a number which I have seen, are all examples of compound hypermetropic astigmatism, two with the astigmatism according to the rule and two with the astigmatism contrary to the rule, and in all the macular change in that eye exhibiting the smaller error of refraction. It is not improbable that, if this topic were pursued and large numbers of cases gathered together, it would be found such spots occurred more frequently in eyes exhibiting the smaller degree of refraction error, for the very reason that they may represent eyes that are increasing in refraction and lessening the amount of hypermetropia.

We come now to consider the fourth group of these cases, in which it is possible to point with more exactness to a cause for the changes in the eye-ground, and I will ask your attention for a moment to this group.

GROUP 4.—*Symmetrical macular changes—asymmetrical refraction error; probable influence of constitutional derangement.*

Case 1.—M. G., a man aged 54; aching eyes; intense occipital headache; very gouty, suffering at times with severe exacerbations of acute gout; gouty change in the kidneys. Horizontally oval discs, gray, and in each macula numerous round yellowish dots about the size of the head of a pin. O. D. + 2.s ◯ + .50c axis H. $\frac{20}{20}$. O. S. + 2.50s ◯ + .75c axis 165 $\frac{20}{20}$.

Case 2.—D. L., a man aged 42; severe occipital headache; apparently fair general health; years ago had yellow fever. The urine free from albumen and tube casts, but loaded with uric acid. In the right eye an oval disc, the upper and inner edges veiled. Down and in from the disc a small spot of choroidal change and numerous yellow dots in the macula. In the left eye a round disc, edges veiled, and central lymph sheaths full. Similar macular changes. O. D. + .60s $\frac{20}{20}$. O. S. + .25s ◯ + .50c axis 150 $\frac{20}{20}$.

Case 3.—Mrs. A., aged 46; at present in good health, suffering only from headaches attributed to eye-strain and some conjunctival irritation; has had two attacks of puerperal fever, the last with her youngest child, now in his seventh year. In each eye round discs with sharply marked scleral rings, especially below, and in each macular region to the disc side of the fovea several yellowish splotches spotted over with small pigment dots. O. D. + 1.25s ◯ + .60c axis 75 $\frac{20}{20}$. O. S. + 1.50s ◯ + .50c axis 105 $\frac{20}{20}$.

Case 4.—Miss M., aged 10; recently has had

[1] Dr. G. M. Gould (Archives of Ophthalmology, Vol. xix, p. 31) reports eight cases to illustrate the hypothesis that central choroiditis is due to ametropia, and suggests the name ametropic choroido-retinitis.

sore throat (diphtheria?); has had malaria; feels a film over the eyes; much brow pain. In each eye numerous fine dots the size of the prick of a pin and of yellowish color. The urine contains albumen and tube casts. O. D. 1.50 $\frac{1}{4}$. O. S. 1. $\frac{1}{4}$.

Case 5.—Miss P., aged 24; pain in the eyes, worse when reading; claims to be in good general health, but is readily tired; pain in the back, face pallid and slightly puffy beneath the eyes. Urine of low specific gravity; small hyaline casts. In the right eye the disc is round, the lymph sheaths full, and the macula contains several granular spots. In the left eye the disc is oval, the lymph sheaths full. In the macula granular dots, and one small yellowish patch below the fovea.[1] O. D. + .25c axis 95 $\frac{1}{4}$. O. S. + .50c axis V $\frac{1}{4}$.

Any influence of refraction error in these cases probably may be eliminated, and this has simply been recorded for the sake of uniformity. In two of the cases the presence of renal disorder renders the explanation of macular change of ready demonstration. They have been referred to chiefly because they represent a large class where very fine lesions in the macula, which do not in any way influence central vision, which can often be found only by the most careful focusing, and yet which direct attention to an examination of the urine, with the results detailed in Cases 4 and 5. I have on a number of occasions had cases of this character referred to me by competent general practitioners, who were not a little amazed when I sent them word back that the headache which they had supposed due to eye-strain, and consequently coming within my province for treatment, was a headache in all probability due to renal inadequacy, and belonging to them. These cases are in no sense albuminuric retinitis, and I have watched them for long periods of time and they apparently do not develop into albuminuric retinitis. They stay simply where they are, and in some minor degree are an index of renal change; moreover, of a renal change which is apparently perfectly compatible with what appears to be good general health. Perhaps investigation would show that such cases are present in the examples of so-called transient albuminuria; perhaps they are only coincidences—but be this as it may, they deserve attention. In two of the other cases (Case 1 and Case 3) renal change was no doubt at the bottom of the lesion; the one a case of chronic gout with gouty kidneys, and the other in a woman who had attacks of puerperal fever. They are interesting only in the fact of the smallness of the lesion and the presence of accompanying perfect central vision. In Case 2 the fact that the patient had yellow fever, and was the subject of uric acid diathesis in a minor degree, is of interest. I have elsewhere reported not macular changes, but decided general retinal disturbance in association with oxaluria. Perhaps this case is analogous.

In a number of instances exposure to intense light (sunlight, electric light), has resulted in the appearance of a persistent after-image. Corresponding to the central scotoma evidences of retinitis or retino-choroiditis have been found in the macula. It is to this class of cases that the final group belongs, of which I have only one example to quote.

GROUP 5.—*Slight macular changes—the apparent result of exposure to a bright sunlight.*

Case 1.—Miss B., aged 22, complains of a dark spot before the right eye which followed prolonged exposure to the glare of a sunset upon the ocean, the patient having watched this for a long period of time. No headache, no asthenopia. A careful examination by the family physician discovered no constitutional derangement. In the right eye an irregularly oval disc with central excavation, and in the right macula a dark area, and up and in from the fovea a number of fine, faintly marked, yellowish-white dots. In the left eye no similar dark area, but one or two fine dots. No dark spot complained of before the left eye. O. D. + .50s ◯ + .25c axis H. $\frac{1}{4}$. O. S. + .75s ◯ + .25c axis 120 $\frac{1}{4}$.

The dark area in this case was noted two years ago. It persists still, only the scotoma has grown exceedingly faint, and there has been corresponding fading of the macular changes. That this is really an after-image and is on the retina, is evident from the fact that it obscures but does not hide real objects, moves with the motions of the eye, and is projected when the observer looks upon a dark ground. These are the points which Dr. Tuke, in his article on "Hallucinations and the Subjective Sensations of the Sane," considers characteristic of the after-image of a luminous object. An interesting point in this case is the fact that in the right or affected eye there was a patch darker than the surrounding retina which was the cause of the scotoma, both maculas contained yellowish dots, but evidently independent of the influence of the intense sunlight. The lesion, then, was somewhat analogous to that which has been described under the title of *commotio retinæ*. It is not my purpose to discuss macular disease from intense light, but I have quoted this example as one having all the symptoms of this disorder save only that perfect central acuity of vision was preserved. It may be interesting, however, to note that there was no change in the periphery of the eye-ground, that the field of vision was normal, and that an attempt to map out a positive scotoma on the perimeter was not possible.

In the absence of microscopical examination it

[1] Cases 4 and 5 have been referred to in a paper before the County Medical Society of Philadelphia, read April 23, 1890.

is idle to discuss the pathology of these small lesions. They appear to arise in the choroid, and to partake of the nature of a spot of degeneration indicating the portion supplied by a single capillary loop, but not of sufficient extent to seriously involve the retinal elements and produce depreciation of central vision. It is not improbable that some of them may be congenital (in those examples in which no other cause was found), or that they have arisen under the possible influence of refraction error, certainly in some instances through constitutional disturbance; and have found their habitat in that portion of the eye-ground which experience has taught is liable, especially in people with a predisposition to macular disorder, to degenerative changes.

DR. RANDALL asked to emphasize Dr. de Schweinitz' note that in many of these cases full normal vision was present, generally without even relative scotoma; and, further, that even where renal trouble has been found by clinical and microscopical tests there has seemed to be no tendency to an increase of the lesion, but, on the contrary, the lesions rather tend to fade. The albuminuria has proven transient, and no albuminuric retinitis has occurred.

DR. T. E. MURRELL, of Little Rock, Ark., said he saw a case of macular spot—a shadow over the macula, caused by viewing the transit of Venus over the sun's disc with the unaided eye.

DR. CHEATHAM said in reference to Dr. de Schweinitz' cases that only last week he saw a case of central retinitis with H. 3.25 D.; this patient had been exposed to very bright light also. V. = ⅓. He had seen many cases of marked changes at macula, with central blindness, dating back to the total sun eclipse years ago.

DR. ROBERT TILLEY, of Chicago, has seen some of these cases of macular changes, and has been accustomed to regard them as an evidence of specific lesions either primary or hereditary, and remembers one case in point in his recent practice, in which he had supposed that he had obtained advantage over a brother practitioner in seeing the case a little later, when these spots were more readily observed. At any rate, while weak plus glasses were previously given without satisfaction, the exhibition of specific remedies gave relief and the glasses were cast aside.

DR. DE SCHWEINITZ wished to be understood that the cases of macular change which he reported were entirely independent of the syphilitic taint, and were unrecognized by the patient because they gave no inconvenience. The case of macular disease from intense sunlight was peculiar only in the possession of perfect central acuity of vision. Dr. de Schweinitz thought it had been experimentally shown that the direct influence of sunlight was the cause of the retino-choroidal macular change.

MALARIA AND THE CAUSATION OF INTERMITTENT FEVER.

Read in the Section of Practice of Medicine, Materia Medica and Physiology at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY HENRY B. BAKER, M.D.,
OF LANSING, MICH.

Dr. Tommasi-Crudeli and others have claimed that intermittent fever is caused by a bacillus.

Drs. Laveran, Osler, Council and others have proved, to their own satisfaction at least, that intermittent fever is caused by a microscopic hæmatozoön.

At the meeting of the American Medical Association in Cincinnati, in May, 1888, I presented what I then considered and still consider to be incontrovertible evidence that intermittent fever is caused by exposure to changes of atmospheric temperature,—that, ordinarily, its causation is quantitatively related to, and apparently controlled by the range of atmospheric temperature.[1] It seems to me that both these lines of evidence, which appear to be so divergent, may be true. I feel sure that my own line is. And I have very great confidence in those who have presented the other line of evidence in which they are expert.

Therefore, although those who have held the germ theory of the causation of intermittent fever have not, so far as I know, accepted the evidence which I have collected and published, yet I feel impelled to again ask attention to it. I attempt this the more readily, because the facts and considerations, which it seems to me to make it appear possible that both lines of evidence may be true, were, in the main, held in mind when I read my paper two years ago, but there was not then time to elaborate, and I, therefore, only referred to but did not fully state them.

I suppose that all here are probably familiar with the literature of the subject of the bacillus of malaria, and also that relative to the hæmatozoön of malaria, discovered by Laveran. I may, therefore, devote my time exclusively to that other phase of the subject, on which I have collected evidence, and which is probably little known.

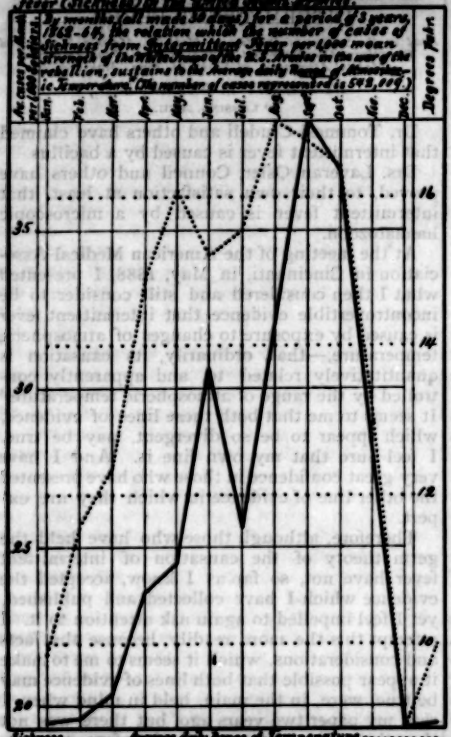
The most important evidence which has been presented by myself is as follows:

1. Statistics of sickness from intermittent fever in Michigan during a long series of years, arranged to show the relation of intermittent fever to changes in atmospheric conditions, and which have proved, to my mind, that the controlling condition is associated with atmospheric temperature, the sickness rising and falling with the temperature. This is shown by Diagram No 3[1], which is one of a series prepared to illustrate my previous paper.

[1] "Malaria and the Causation of Periodic Fever," Journal Amer. Med. Association, Nov. 10, 1888. [1] Page 563.

No. 1.—Range of Atmospheric Temperature, and Intermittent Fever (Sickness) in the United States Armies.

By months (all wards 30 days) for a period of 3 years, 1862–64, the relation which the number of cases of Sickness from Intermittent Fever per 1,000 mean strength of the white troops of the U. S. Armies in the war of the rebellion, sustains to the Average daily Range of Atmospheric Temperature. (The number of cases represented is 595,000.)

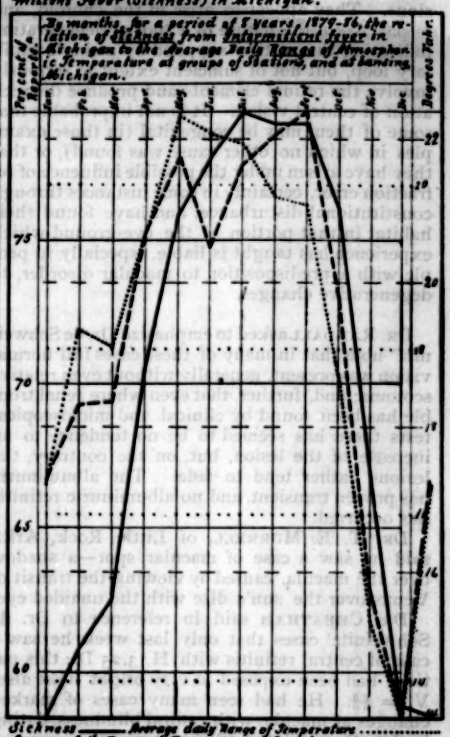


Sickness _____. Average daily Range of Temperature .....

The sickness is compiled from the Medical and Surgical History of the war of the rebellion. The range of Temperature is compiled from a table on page 456 of the Smithsonian Tables Distribution and Storation of the Atmospheric Temp. in the U. S. It is for a period of 3 years, 1862–64, at Naval Observatory, Washington, D. C.

No. 2.—Range of Atmospheric Temperature, and Intermittent Fever (Sickness) in Michigan.

By months, for a period of 5 years, 1872–76, the relation of Sickness from Intermittent fever in Michigan to the Average Daily Ranges of Atmospheric Temperature at groups of Stations, and at Lansing, Michigan.



Sickness _____. Average daily Range of Temperature .....
Average daily Range of Temperature at Lansing — — — —.
Indicating what per cent of all reports received stated the presence of Intermittent fever then under the observation of the physicians reporting.
Over 35,000 weekly reports of Sickness are represented in this diagram.

TABLES FROM WHICH ACCOMPANYING DIAGRAMS WERE DRAWN.

No. 1.—Sickness from Intermittent Fever in the U. S. Armies, in 1860-4, and Range of Atmospheric Temperature.

	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Intermit. fev. (a)	19.4	19.6	20.4	23.6	24.5	30.6	25.6	32.0	38.5	36.8	28.1	19.3
Av. range of tem.	9.87	11.55	12.36	14.88	16.10	15.21	15.57	17.01	16.76	16.41	13.12	8.87

No. 2.—Sickness from Intermittent Fever in Michigan, and Range of Atmospheric Temperature.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Intermittent fever (b)	58.4	60.8	62.5	70.4	75.8	77.8	79.5	79.0	79.0	76.1	67.0	58.8
Av. range of temp. (Mich.)	16.34	18.23	18.02	19.41	20.83	20.62	20.50	19.84	19.74	17.69	14.69	13.56
Av. range of temp. (Lansing)	17.25	18.29	18.33	20.67	21.72	20.46	21.01	22.05	22.35	19.81	15.73	13.92

No. 3.—Sickness from Intermittent Fever in Michigan, and Maximum Atmospheric Temperature.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Intermittent fever (b)	58.4	60.8	62.5	70.4	75.8	77.8	79.5	79.0	79.0	76.1	67.0	58.8
Max. temp. at Lansing	28.2	31.1	39.1	55.7	69.2	77.0	82.3	79.9	73.5	61.3	43.3	31.9

(a) Average cases per month per 1,000 soldiers.
(b) Per cent. of weekly reports which stated the presence of intermittent fever.

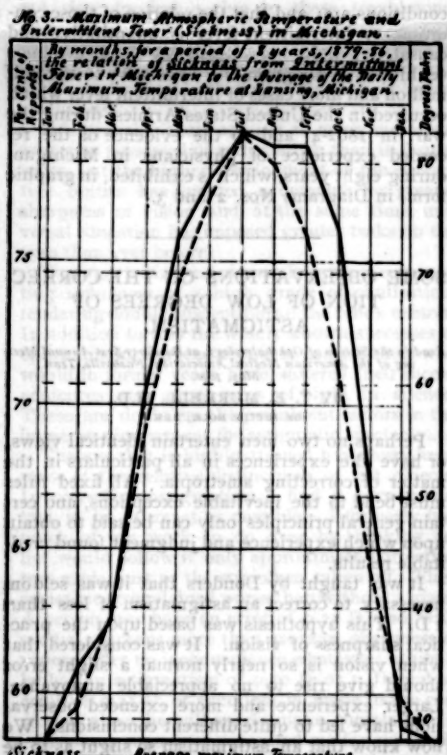


Fig 3.—Maximum Atmospheric Temperature and Intermittent Fever (Sickness) in Michigan.

By months, for a period of 8 years, 1879-86, the relation of Sickness from Intermittent Fever in Michigan to the Average of the Daily Maximum Temperature at Lansing, Michigan.

Sickness——— Average maximum Temperature – – – –

*Indicating what per cent of all reports received, stated the presence of Intermittent Fever then under the observation of the physicians reporting.

Over 35,000 weekly reports of sickness are represented in this diagram.

2. Statistics relative to intermittent fever in the United States Armies, elaborated from the medical and surgical history of the war of 1861-5. This evidence is graphically shown in Diagram No. 1.[3]

An abstract of a summary of conclusions based upon the evidence which I collected, is as follows:

"2. The *controlling* cause of intermittent fever is exposure to insiduous changes, or changes to which one is unaccustomed, in the atmospheric temperature.

"3. In the mechanism of the causation of intermittent fever, the chief factor is the delay in reaction from exposure to cool air; this delay, extending to a time when greater heat-loss should occur, results in the abnormal accumulation of heat in the interior of the body, and in disturbed nervous action—the chill; and the final reaction is excessive because of the accumulation of heat, and, sometimes, because it occurs at the warmest part of the day.

"4. The fever is the excessive reaction from the insidious influence of the exposure to cool air; and it is periodical because of the periodicity of nervous action, and, because the *exposure* and the consequent chill are periodical, owing to the nightly absence of the warmth from the sun.

"5. Residence in valleys or low lands through which or upon which cold air flows at night, and thus causes insidious changes in the atmospheric temperature, favors intermittent fever.

"6. *In our climate*, those measures, such as drainage, which enable the soil to retain warmth during the night, and thus reduce the daily range of temperature immediately over such soil, tend to decrease intermittent fever among residents thereon.

"7. In the cure and prophylaxis of intermittent fever, those remedies are useful which lessen torpidity and tend to increase the power of the body to react promptly to insidious changes in atmospheric temperature."[4]

Preparing, now, to forge a link, in the chain of evidence, which was omitted from my paper, Sir William Moore, who has had great experience and observation in India, says: "So-called malarious fevers are caused by sudden abstraction of heat, or chill, under the influence of cold, and more especially of damp cold. These effects of chill are more marked in hot climates, because of the antecedent exposure to great solar heat, the anæmia and skin debility resulting from heat and the disregard of suitable precautions."[5]

I think that my statistics indicate that another reason, for there being most intermittent fever in hot climates, is because the difference between the day and the night temperatures is the greatest in hot climates, and, consequently, the demands upon and resulting disturbances of the heat-regulating apparatus of the body are greatest in hot climates.

Intermittent fever is most prevalent in hot climates. In temperate climates, intermittent fever is most prevalent in the warm months. Here a reason similar to that just given applies,—it is then that there is greatest difference between the day and the night temperatures.

I believe that perspiration is probably a factor in the causation of intermittent fever. I do not base this opinion merely upon the facts just stated,—relative to place and time of greatest prevalence; but mainly upon two facts as follows: Perspiration tends to cause chill, because of the fact that evaporation from moist clothing tends to lower the temperature rapidly. I believe that a chill, especially at the warmest time of the day, is, not infrequently, sufficient to start the disease intermittent fever. Excessive perspiration tends to

[3] Page 562.

[4] Jour. Amer. Med. Assoc., Nov. 10, 1888.

[5] London Lancet, also Medical Age, Detroit, Feb. 10, 1890, p. 66.

change the condition of the blood; and chill tends to change the condition of the blood, in some such way as follows: When the surface of the body is strongly contracted, the blood is driven from all the surfaces, the circulation is impeded, the blood parts with some of its fluid, and, with it, the salts, which pass into the urine; then there comes a demand of the tissues for blood, thirst is great, which, when satisfied, again fills up the blood-vessels. This rapid changing of the proportion of fluid in the blood tends, I believe, toward the solution or breaking up of the red-blood corpuscles. My belief is that the destruction of the red corpuscles is greater than it would be if only the proportion of water in the blood was changed,—that the destruction occurs partly through a disturbance of the proportion of certain salts in the blood. It is not difficult to see how this may be: Excessive perspiration takes out salts, especially sodium chloride, in considerable quantity; the urine passes out salts in considerable quantity. On the other hand the water drank to quench the thirst, does not ordinarily take salts into the blood. (Except in cases where common salt is given as a remedy, which is sometimes done by non-professional persons.) According to experiments made many years ago, in the circulating blood, in health, the red corpuscles are preserved by sodium chloride from being dissolved in the albumen.[6] As this paper is not an exhaustive treatise on this subject, but is intended to be suggestive to other investigators, I do not now attempt to collate recent evidence on the changes in the blood. In order, however, to account for the destruction of the red corpuscles, the formation of the pigment, and for the phenomena of intermittent fever, I see no need for the micro-organism which is alleged to be parasitic in the blood, in intermittent fever. It seems to me that all of the phenomena can be accounted for about as well without the parasites as with; but it seems to be a general fact in nature that whenever a highly-organized being commences to break down, there are generally organisms that await the occurrence, and when the breaking down process is of elements microscopic in size, I believe that microörganisms are generally there. I accept the evidence of the eminent men, who have reported that they are present in the blood in intermittent fever.

But if we grant that malarial fever *is* caused by microörganisms, parasitic in the blood, it has remained to be explained how it is that the micro-organisms only cause intermittent fever under certain conditions of the atmosphere. That intermittent fever does occur under some conditions, and does not occur under other conditions, has long been positively known. I claim that the statistics which I have collected prove what those conditions are; and that the relation of those conditions to intermittent fever is quantitative and causal. I refer more especially to the evidence (exhibited in Diagram No. 1) relative to the half million and more cases of intermittent fever which occurred in the United States Armies, during the war, in 1862-4; and to the evidence of the recorded experience of physicians in Michigan, during eight years, which is exhibited, in graphic form, in Diagrams Nos. 2 and 3.

[6] Dalton's Human Physiology, First Edition, page 56. Human Physiology, Flint, Fourth Edition, 1888, page 452.

SOME OBSERVATIONS ON THE CORRECTION OF LOW DEGREES OF ASTIGMATISM.

Read in the Section of Ophthalmology, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY T. E. MURRELL, M.D.,
OF LITTLE ROCK, ARK.

Perhaps no two men entertain identical views, or have like experiences in all particulars in the matter of correcting ametropia. All fixed rules must bend to the inevitable exceptions, and certain general principles only can be said to obtain upon which experience and judgment found creditable results.

It was taught by Donders that it was seldom necessary to correct an astigmatism of less than 1 D. This hypothesis was based upon the practical sharpness of vision. It was considered that when vision is so nearly normal a slight error should give rise to no appreciable annoyance. Larger experience and more extended observations have led to quite different conclusions. We now know that an astigmatism so slight as to be scarcely appreciable by ordinary tests may be the source of very considerable discomfort when the eyes are much employed.

Since so few eyes are absolutely free from corneal astigmatism, the question arises: Where shall the line be drawn between the normal and the abnormal? To every one of large experience in this class of work the answer readily comes up: It is largely a matter of clinical experience and not of optical perfection; since we observe many persons with much astigmatism who make little complaint, while in others, with the smallest appreciable degree, there are the most distressing symptoms.

In the earlier years of my ophthalmic work I was disposed to follow the great master, whose text-book was my sole guide, and ignored all cases where the astigmatism was appreciably less than 1 D. The trial cases made at this time contained no cylinder less than about 1 D. I found myself, however, recording accommodative asthenopia, hyperæsthesia of the retina and various neuroses for which I could not account and for which I could find no remedy. Shrewd observers were

not slow to find a clue to these troublesome phenomena. The more that low degrees of ametropia were corrected the less were the number of cases of hyperæsthesia of the retina, accommodative and retinal asthenopias and like obscure conditions.

It is probable there are not so many more persons now possessed of astigmatism than in former years, but the higher development of the perceptive centres has created a demand for greater sharpness of vision and, at the same time, universal education has imposed greater tasks on the eyes than ever before.

Together with these demands come the enervating influences of a high grade of civilization, rendering doubly susceptible all the reflex centres. In addition to this the widely known successes of ophthalmologists lead people to consult them who would in former years have suffered their inconveniences and annoyances of sight in silence. These are doubtless the prominent factors in the immense requirement for astigmatic spectacles.

The eye that is highly trained has a very keen sense of the relative distinctness of test objects. In correcting astigmatism I find it very important to be as exact as possible. I formerly had much of my work to do over by thinking relief would follow if only approximate correction was made, just so the strain was taken off. They sometimes complained worse than without a glass. A person may have an error of 0.25 D. and, with normal, perhaps more than average, sharpness of vision suffer no inconvenience whatever; while if he has an astigmatism of 0.50 D. or 1. D. and an error of 0.25 D. or even less is made in the correcting glass, he will surely make complaint.

A young man once consulted me for eye-strain and nervous troubles, pronounced spinal in origin by his family physician. I discovered a myopic astigmatism for which I prescribed — 1. D.c. 180° for each eye. These were worn for two years, but gave very little relief. Vision was sharp with them too. He was then tried for some time with — 0.50 D.c. 180° each eye, with which he seemed to see equally well as with the first glass. These gave only partial relief. Finally a — 0.66 D.c. 180° each eye was ordered, and with these he has had perfect comfort, all eye-strain completely disappearing in a short while, and now, after nearly a year, he expresses himself as still delighted with his great boon in the possession of the magical glasses. The last change made in his glasses, which brought such relief, amounted to only about 0.16 D.

In another instance I found 0.50 D.c. too strong and 0.25 D.c. too weak, and obtained perfect comfort with 0.33 D.c. This gentleman is to-day one of the most grateful friends I have. A lawyer by profession, he had nearly decided to abandon his profession for some non-literary pursuit on account of persistent and troublesome asthenopia whenever he would read. With his glasses he now has no trouble, and has started afresh with his professional work.

These may seem very fine distinctions, but they are correct observations accurately and faithfully made. I can very readily conceive how less degrees of astigmatism than are ordinarily corrected may give rise to annoyance in highly neurotic persons, but I rarely find use for the 0.25 D.c. some persons are now prescribing so extensively. There are very few persons whose vision will not be sharpened by a + or — 0.25 c. at some particular angle. In my own case a + 0.25 c. 90° for O. D. and 135° for O. S. materially sharpen Snellen, but I cannot wear these glasses for even a few minutes without distress. I have never felt the need of glasses in my work.

My experience leads me to the employment of a mydriatic in determining astigmatism. I am becoming more and more convinced of its importance. I use atropine only. Homatropine has so often misled me I have altogether abandoned it. It will rarely completely paralyze the accommodation, which is essential if a mydriatic is used at all.

It is sometimes necessary to instil into the eyes a 1 per cent. solution of atropine three times daily for several days before complete relaxation of the accommodation will be produced. The astigmatism found in total paralysis of accommodation is, according to my experience, the actual astigmatism of the eye, and the glass that corrects it will, in the end, prove the most satisfactory glass.

I believe that the partial correction of corneal astigmatism by some undefined manner of irregular contraction of the ciliary muscle, by which an astigmatism found during paralysis of accommodation disappears on the return of accommodation, is the cause sometimes of incorrigible asthenopias. According to my experience an astigmatism found under atropine exists in reality without it, however much it may be masked by accommodative action, and the persistent wearing of the correcting glass will eventually suspend the action of the no longer necessary compensating accommodative effort and with it bring perfect comfort and rest to the eye.

The opposite of this rule will not hold, for an astigmatism found in full accommodation will often disappear under suspension of this power.

A girl 15 years old consulted me by advice of her physician for headaches, to see if they were not due to eye-strain. I found that a + 0.50 D.c. 90° very decidedly sharpened V. in both eyes. These glasses were repeatedly tried with the same results every time—almost doubling the acuteness of V. They were ordered. At first they suited admirably. At the end of a week she returned with the complaint that her glasses no longer gave comfort. A 1 per cent. solution of atropine was instilled into each eye three times daily for three

days and she was again examined. There was now no astigmatism to be found, but only a total hyperopia of 0.75 D. Since the return of accommodation there has been no further astigmatism found and no further complaint. Such cases as this are right often met with, and offer another argument for the use of a mydriatic in determining all errors of refraction and especially astigmatism. This so-called lenticular astigmatism has received a good deal of attention of late. As to its correction a question is involved bearing upon the theories I have here advanced.

The importance of atropine in ascertaining the exact error of refraction is well illustrated in the following case: Mrs. H., aged 26 years, was ordered + 1. D.c. 90° for each eye nine years ago by a well-known ophthalmologist. Two years ago the same gentleman prescribed for her + 0.50 D.c. 90° for each eye. Neither of the glasses relieved a peculiar weariness more or less constant in the eyes. On consulting me not long since, I found she saw best with the + 1. D.c.; it raising V. from Sn. $\frac{1}{8}$ to $\frac{1}{4}$, and with it she could read J. 1 fluently.

I told her I could not be positive whether the trouble was in her eyes or not without using atropine. She consented to it, and a 1 per cent. solution was dropped in each eye three times daily for three days. I now found astigmatism = 1.75 D. 180° in O. D. and astigmatism = 1.50 D. 165° in O. S. Glasses were ordered as follows: O. D. + 1.75 D.c. 90°; O. S. + 1.50 D.c. 75°.

She was directed to wear these constantly. A little awkward at first, her eyes became more and more comfortable, and at last accounts she was highly pleased. In low degrees of astigmatism I have often found V. = $\frac{1}{4}$, with full play of the accommodation, reduced to $\frac{1}{4}$ or $\frac{1}{8}$ under atropine, when the astigmatism becomes an easy problem.

Each of the points brought out in this paper could be fully illustrated from my record book were it worth while. I trust that the narration of my own experiences and observations will call for expressions of opinion from others of larger experience in this particular line of work.

DR. FROTHINGHAM said: As the results of experience are of such importance in the consideration of a question of this kind, I wish to say that I now correct low degrees of astigmatism in nearly all cases of persistent asthenopia. I use atropia less often than formerly, as I find that in many instances I can sufficiently correct the ametropia without resorting to its action. In many cases the patients will not submit to a sufficiently prolonged use of it, or even to a brief action of it, so long as it is possible for them to use the eyes at all. They plead that it is impossible for them to stop work and suffer the inconvenience its action would cause them. In cases of severe and persistent asthenopia the thorough action of atropia becomes almost imperative and the action of more transient mydriatics possesses no advantage, for prolonged rest of the ciliary muscle becomes necessary. There are cases, however, in which it becomes necessary to know the exact static refraction of the eye in order to prescribe even temporarily. Here the action of homatropine is very valuable. By its action we can often get the desired information in the case of patients who would not submit to the action of atropine, which lasts so much longer.

DR. RANDALL stated that his paper dealt with several of the points raised, and he would forestall it by speaking as to them now. He wished to reiterate the points elsewhere made that ametropia is the rule—astigmatism as well as hypermetropia being found in the majority of cases. Adults as well as children show these errors, the assumption that they are outgrown being wholly unproven. Refraction error is to be expected, therefore, in most cases, whether eye-patients or not—whether it needs correction is, however, a question to be decided only on the merits of each individual case. Small errors may be very important. Accuracy often demands a mydriatic, and hyoscyamine seems the best in most cases, as it is less apt to cause constitutional symptoms than duboisine, passes off in half the time required by atropine, yet gives full three days of total rest after the last instillation (where atropine gives but two), and enforces only two days of returning accommodation instead of eight or ten days, as after atropine. Many cases cannot be measured under mydriatics, even homatropine, but the refraction as measured under full paralysis of the accommodation is the true basis of our study.

DR. LEARTUS CONNOR, of Detroit, Mich., said that 1. If possible the examination of all cases of asthenopia should be conducted under the influence of atropine, as this saves time and promotes exact accuracy. 2. But practically such use is impracticable, owing to the engagements of patients. Further, an experience with several thousands of cases shows that the results of correction of refractive error are usually satisfactory when made without atropine. In fact, a comparison of these results with those obtained under atropine is favorable—the relief to the patient being equally satisfactory. 3. Atropine I have found far more satisfactory than other mydriatics. 4. The use of small degrees of astigmatism I esteem more highly with extending observations of their results. But I do not use them unless the general condition of the patient is normal and a distinct asthenopia continues.

DR. J. H. THOMPSON said he could not agree with the custom of fitting in a routine manner very small degrees of astigmatism, inasmuch that an appreciable astigmatism of low degree, 0.25,

is not by far the cause of the asthenopia complained of. The more I practice the more I am convinced that atropia is not necessary in all cases. In children under 14 years atropia may be advantageously used, but in adults its use may be more annoying than beneficial. Astigmatism and hypermetropia may be corrected very early in adults without a mydriatic. In presbyopia with astigmatism it may be sometimes necessary, but should be avoided if possible. I have reasonably good results without atropia. Low cylinders, especially in minus, are fascinating and will be in many cases accepted, but that is no indication that the glass is necessary or proper for asthenopia. Many cannot, with an anatomically normal eye be dependent upon lowered muscular or nerve tone. Correcting the astigmatism in such cases will not give permanent relief.

Dr. Hotz, of Chicago, said that he uses homatropine and saw no reason from his own experience to question its efficiency and reliability, and if it answers the purpose for our refraction tests it certainly is preferable to atropine. Though the result under suspended accommodation gives the true refraction, it is seldom practicable to give the glasses this refraction calls for. The astigmatism can and must always be fully corrected, but for the common hypermetropia I find the patient will not accept a full correction; the glass has to be ½ D. less, and sometimes even more of the hypermetropia must be left uncorrected; if you correct more, the glasses will cause as much discomfort as a faulty correction. Perfect vision and the comfortable use of his eyes is what our patient wants, and therefore correct the error of refraction—no matter how great or how little—so far as necessary to attain this end.

Dr. Lewis H. Taylor, of WilkesBarre, Pa., said: I have been much interested in listening to the paper just read, and am glad to hear the speaker say that he uses atropine in correcting astigmatism. I almost invariably use it, and for some years past have discarded other mydriatics, homatropine and dubosine especially in my hands being unsatisfactory. I do not quite agree with the speaker as to the uselessness of the quarter dioptry cylinder. I have had considerable experience in its use and have found in many cases most beneficial results, especially when the correction has been made with atropine.

Dr. Lippincott said: In regard to the use of a mydriatic, the circumstances of many of my patients do not permit me to paralyze the accommodation. In such cases I endeavor by repeated examinations to estimate the refractive error, on the principle that half a loaf is better than no bread. However, I consider the use of the mydriatic desirable wherever possible, not only because it tends to secure an accurate result, but because it enables us to obtain the result rapidly, thus saving much time.

As regards the correction of low degrees of astigmatism, I not very infrequently prescribe a cylinder as low as a quarter of a dioptric. It may be remarked that even if the glasses are subsequently laid aside, this fact does not argue against the correctness of the prescription, because it sometimes happens that the necessity for a glass arises from a neurasthenic condition which may last only during a short period, during which the patient is tided over his difficulty by the use of the cylinders.

Dr. Jackson: I believe there is a state of static refraction revealed by the efficient use of any of the mydriatics named. On account of the brevity of its action I, therefore, prefer homatropine for purposes of diagnosis only. It is very generally forgotten that the glass giving the best vision at 15 or 20 feet is not the correction of the ametropia but for hyperopia, an over-correction of ¼ D. This over-correction will be annoying as long as it lasts. But the true correction, if annoying at first, will in time disappear entirely.

ON THE UNITY OF DIPHTHERIA AND MEMBRANOUS CROUP.

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY D. BRYSON DELAVAN, M.D.,
OF NEW YORK.

The discussion of this apparently trite and timeworn question would seem out of place at this meeting, were it not that, even at the present day, we are still unable to speak with certainty concerning it.

The failure to have secured a more definite conclusion regarding it is in no wise due to lack of care on the part of those who have investigated it. On the contrary, it has engaged the attention of a large number of earnest students; the subject has been studied collectively as well as by individuals, and, finally, the diseases in question are of such common occurrence that abundant material has always been forthcoming upon which deductions could be based. With all this accumulation of material and of effort it would seem strange that sufficient doubt should remain to warrant discussion.

We find, however, in studying the differential diagnosis between diphtheria and croup as commonly given, that there are many conditions which are far from being constant.

Thus, it is tolerably well established that in diphtheria the disease is usually due to some apparent cause of infection; that the diphtheritic poison is itself highly infectious; that the membrane may not be confined to the larynx, but may appear in the throat above that organ; that its presence is generally attended with swelling of the cervical glands; that albuminuria is a fre-

quent symptom of it; and that the appearance of the diphtheritic membrane is characteristic.

On the other hand, it is said that the so-called croupous exudation occurs spontaneously and without the history of infection, while it is not itself infectious; that the membrane does not extend beyond the larynx; that there is no swelling of the cervical glands; that there is no albuminuria; that the appearance of the croupous exudation is distinctly different from that of the diphtheritic.

Unfortunately, the exceptions to the above differential points are so common as to throw discredit upon them and much impair their value. It must be conceded that the causes of infection in diphtheria are sometimes exceedingly obscure and difficult to trace, so that in studying them many sources of error may arise. Again, all forms of diphtheria do not appear to be equally infectious. Cases of supposed croupous laryngitis have been seen in which the croupous exudation appeared also upon the fauces. Swelling of the cervical glands and albuminuria have been seen in croupous laryngitis. Finally, from the usual appearances alone of the exudate it is often difficult to determine the true nature of the disease.

The above hasty analysis of the question from a clinical standpoint indicates that investigation has served rather to hinder than to help in the establishment of a reliable standard of differential diagnosis.

Fortunately, the advances made in modern pathology have enabled us to rely for proof in such matters upon evidence other than that given by the rational symptoms of disease, and when the resources of the clinician fail there is left an appeal to a still higher authority, namely: to the microscopist. While in the present discussion the clinical evidence is largely negative, from the microscopical investigation of diphtheria results have lately been reached which give rise to the hope that at no distant day a positive and definite standard may be attained, by which this disease may be isolated from all others, and the question of the unity or duality of laryngeal exudation be finally settled. Löffler (*Deutsch. Med. Woch.*, January 30 and February 6, 1890), and Prof. T. Mitchell Prudden (*Amer. Jour. Med. Sciences*, April and May, 1889), have reported excellent bacteriological observations upon this subject. The investigations of the latter, made in the bacteriological laboratory of the College of Physicians and Surgeons, New York, are exceedingly valuable and interesting. This observer found that, in diphtheritic matter obtained from various sources, a certain form of streptococcus was always present. To this species he has given the name "streptococcus diphtheriæ." Comparing it with those species of bacteria already known and described he finds that, in its forms and modes of growth, as well as in its effects when injected under the skin, or into the blood of animals, it appears to be identical with the two well-known species called "streptococcus pyogenes" and "streptococcus erysipelatos." In view of the above we may indulge the hope that the differential diagnosis between diphtheria and croup, doubtful when regarded from the clinical standpoint, may, in the light of bacteriological investigation, become clearly and definitely established, and that this question, at once so difficult and so important, may at last be set at rest.

PROFESSOR FLINT'S DOCTRINE OF THE SELF-LIMITATION OF PHTHISIS.

Read at the Sixteenth Annual Meeting of the Mississippi Valley Medical Association, at Louisville, Oct. 8, 1890.

BY WILLIAM PORTER, M.D.,

PROFESSOR OF LARYNGOLOGY AND DISEASES OF THE CHEST IN THE ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS; FELLOW OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION; EX-PRESIDENT OF THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Sometime before his death Prof. Flint promulgated the doctrine of the self-limitation of phthisis, and presented it with all of his well known power and great ability to the profession. This very interesting proposition was at the time the subject of free debate in various medical societies, and at a former meeting of the Association I had the honor to partially discuss the position taken by this learned teacher and writer.

The recent years have been full of the wonderful results of the study of pulmonary disease and bacteriologic research, and the possibility of a positive diagnosis has overshadowed the equally interesting question of prognosis. That Prof. Flint's arguments, however, have not been lost to the profession is evidenced by the repeated references to it in recent current medical literature, and many are ready to say with Prof. Stephen Burt, of New York, that "not a few cases of phthisis have a self-limitation." This author, in a valuable paper entitled "Pulmonary Consumption in the Light of Modern Research," read before the New York Academy of Medicine, and published in the *Medical Record*, April 12, 1890, takes the tenable position that "phthisis is an infectious disease, only the soil must be fertile or the bacteria will not take root and grow; that the inheritance of the affection is simply the descent of the degraded cells presenting a vulnerable point for the vagrant germs; that all specific treatment is futile; and though persistent destruction of the infectious matter is our best means of prophylaxis, yet to restore the vitality of the lung tissue is as important as to destroy the tubercle bacilli." Following this comes his affirmation of the possibility of the self-limitation of phthisis. In Pepper's elaborate "System of Medicine," Vol. iii, p. 393, Flint again affirms his

statement that in certain cases of phthisis "the disease may be said to be self-limited."

It is a just inference that this idea has been well received by many excellent physicians and that it has made a deep impression upon the mind of the profession, not more on account of its great champion than because of its plausibility and desirability, for truly as one author says, "it is a comforting thought to the afflicted," and we would add—to the physician also.

I can bring no more interesting question before you: it touches us at all points where we attempt to save life from this dread disease, and it is inseparably connected with our opinion regarding the future of a large proportion of our patients. It is right, therefore, that we should have some fixed idea as to the existence of self-limitation of phthisis and its value in any given case or series of cases.

After having carefully examined the facts cited in support of the proposition, I have no hesitation in distinctly asserting that I find no sufficient evidence to warrant us in accepting the statement that phthisis is self-limiting, or that the element of self-limitation has a decided influence upon the result in any given case. I do not mean that all cases of phthisis necessarily die from this disease, but I do mean that where phthisis is firmly established, there is nothing in the nature of the disease itself that indicates in any stage a fixed boundary—a line of demarkation as it were, but rather that all of its tendencies are progressive and downward.

It is well that there should be in all debate a clear understanding as to the meaning of the meaning of the terms employed, and at the outset I am perfectly willing to accept Flint's own definition not only of the term "self-limiting," but also of the word "phthisis."

Permit me then to quote in full his definitions as given in his argument: "A disease is self-limited when it ends in recovery irrespective of extrinsic influences derived from either hygiene or therapeutics. A patient, whatever be the disease, who recovers without any potential remedies or measure of treatment having been employed, and where there has been no material change in any of the circumstances pertaining to daily life, owes the recovery exclusively to self-limitation." To this we readily agree.

He then defines the terms pneumonic phthisis and pulmonary consumption and says: "I shall consider the terms as applicable to all cases of phthisical disease exclusive of acute tuberculosis and interstitial (fibroid) pneumonia." That there may be no mistake as to his use of words I may add that he uses the terms phthisis, pulmonary tuberculosis, and consumption in the same sense (Prac. Med., p. 271). Using, then, our author's own language, the question is—is there in phthisis, or if you please, pulmonary tuberculosis, a tendency to recovery without extrinsic influence derived from either hygiene or therapeutics?

Although as early as 1835, Jacob Bigelow, in a paper which Prof. Flint justly calls remarkable, read before the Massachusetts Medical Society, applied the term "self-limited" to certain diseases, it was not until 1858 that the latter advanced the idea of self-limitation as applied to phthisis. (*Am. Jour. Med. Sciences*, 1858.) Twenty years afterward the question was ably reopened by him in the paper to which reference has been made, and his position virtually accepted as proven.

The deductions in this important essay are based upon clinical evidence rather than argued from a pathological standpoint, and if you will bear with me I will first present an analysis which I have made of the cases which are cited by Prof. Flint, and afterward endeavor to show that the pathology of phthisis, so far as we yet understand it, is opposed to the doctrine of self-limitation.

In the first place the argument which Prof. Flint advances is founded upon the deductions made from the history of 670 cases of phthisis. Fortunately these cases are all on record, and I shall not only accept the record of each case without question, but follow his own selection, though to very different conclusions.

Among these 670 cases there were 75 in which either recovery took place or the disease became latent. It is, therefore, in these 75 cases we have to find the proof of self-limitation and by these must the proposition stand or fall. I must beg you to bear in mind as we go along, the definition that "a disease is self-limited when it ends in recovery irrespective of extrinsic influences derived from either hygiene or therapeutics."

We find that in 31 of these 75 cases the statement is merely that "the disease ceased to progress for at least several months, and in the majority of cases for several years." By reference to the record we find that the last examination of each gave evidence that the disease was still present—latent in some, as may occur in phthisis, but not self-limited; for "a disease is self-limited when it ends in recovery," etc., and these had not recovered. As according to our author's own definition 31 of these cases have no definite bearing upon the point in question, we are restricted to the study of the remaining 44.

As self-limitation is independent "of extrinsic influence derived from either hygiene or therapeutics," we at once decline the evidence of 21 of the 44 cases, for in all of these pertinent and generally persistent treatment was pursued. Moreover, three of these cases subsequently proved fatal, and the last examination showed that at least a third of them had still physical signs of phthisis. We object to these 21 histories as not

pertinent. The interest now centers in but 23. "In 15 of the cases hygienic measures constituted the treatment;" but these measures were of such a character as would lead us to hope for favorable results, viz., change of business, out of door life, rest, sea voyages, change of climate, etc. These are potential aids, for as Flint says (Prac. Med. p. 290), "out of door life is of all measures most important." Now, to prove a disease self-limiting, we must eliminate whatever can be reasonably traced to "either hygiene or therapeutics." These 15 cases were given the advantage of favorable hygienic condition, and who shall say they would have recovered without these conditions? Having made use of that remedy which of all others has been found efficacious in phthisis, these 15 cases are certainly not examples of self-limitation.

I have refrained from occupying your time with the details of the author's cases, which, in accordance with his own definition of limitation, have been refused as evidence. The history of these is fully given in his work on phthisis, and I have endeavored to deal fairly and justly with the record.

Let us now apply the test to 8 cases which alone remain. These are numbered 1, 4, 7, 8, 14, 20, 23 and 24 (Phthisis, p. 187, et sec.) and are the only ones of which the author says "there was no medical treatment of importance, and no material change in the habits of life, the recovery taking place purely from an intrinsic tendency."

Case 1 is that of a farmer, who having in the winter of 1842-43, expectorated what were thought to be pulmonary calculi, was examined in June, 1843; "the only physical sign noted was feebleness of the respiratory murmur." He was in excellent health 13 years afterward. "Prior to the development of the disease the patient had worked very hard on a farm. He left home for several weeks, and after relinquishing severe labor, engaged in buying and selling new lands in Illinois, a business which required much out-of-door life." Excellent treatment.

Case 4.—A physician aged 28 had hæmoptysis, in October, 1852, and again in January and May, 1853. In May, 1853, he had slight dulness at the right summit, with weakened respiratory murmur and crackling, which accompanied inspiration and expiration. In September, 1854, he reported himself well, "a year after recovery;" *i. e.*, his recovery must have dated from September, 1853, five months only after the above symptoms were noted. However, we find that in September, 1854, there was still a dulness at the right summit and the respiratory murmur was feeble.

Case 7 is that of a constable examined in April, 1856. Six years before he had had a hæmorrhage, and shortly afterwards recurrent hæmoptysis for ten days. During the following year Prof. Flint met this man from time to time on the street, and he seemed to be in good health. As this man evidently had phthisis for six years prior to examination, what reason is there, in the absence of a later examination, to suppose that he had entirely recovered during one succeeding year? The statement that he seemed well will apply, at times, to many cases of chronic phthisis. "There is no further record of this case. The treatment consisted of cod liver oil for six weeks, generous living, the use of malt liquors, and out-of-door life." Very good intrinsic influences we take it.

Case 14.—A physician, who had cough, hæmoptysis and slight loss of flesh, was examined October, 1857, and found to have evidences of phthisis at the left apex. Five years later Dr. Flint saw him in apparently good health. He had been drinking beer, living generously, with an abundance of exercise out of doors. It seems that in this case and in No. 4, no medicinal agent was used, though the patients were physicians. They both had the influence of riding and driving in the open air while engaged in country practice.

In *Case 24* we find that the patient consulted Dr. Flint by letter in 1859; was relieved of part of her duties as a teacher; took more out-of-door exercise; traveled in the summer. In 1862 had abnormal dulness, feeble respiration, and increase of resonance and whisper at the right summit. Afterwards traveled in Europe; in 1868 had hæmoptysis; in 1869 increase of symptoms, and she died in the spring of 1871. Did this patient recover, and that without change of hygienic condition?

The three remaining cases do, so far as recorded, seem to be instances of recovery from phthisis without medical or hygiene agency.

Case 8 was a clerk, examined in August, 1856, having had cough two months previously and hæmorrhage a week before. There was dulness and feeble respiration at the right apex and subcrepitant râles on both sides. In October, 1856, he was reported well, and was in good health in 1871. The thought is at once suggested, why did he, being examined at a time of greatest danger, not have medicinal treatment? The case is, however, one of great interest, and is certainly an exception to the general rule, as the disease appeared, progressed and abated within a period of five months.

The other two *Cases 20 and 23*, furnish the best evidence in favor of self-limitation, though the record is very short. Two sisters whose parents, three sisters and two brothers, had died of phthisis, were found, one with disease of the left apex, the other of the right. No remedy of importance was given, or change made in the habits of life. Both were well fifteen years afterward. Again the question may be asked, why was not

some form of treatment or change of condition ordered in these cases, as "no effort had been spared to save the lives of their sister and brothers; traveling, changes of climate, together with remedies having been resorted to in vain, although perhaps, with the effect of retarding the progress of the disease." With this, however, we have nothing to do. The record is that these two sisters for whom nothing was done alone recovered. Granting that these two cases, and possibly the preceding one, show evidences of self-limitation, yet they are but three out of 670, and we again quote from Prof. Flint's paper, "Self-limitation cannot be inferred from a single case or a very few cases."

The clinical evidence cited by Prof. Flint certainly does not prove the doctrine of self-limitation according to his own definitions, for we find that in the large experience of its able advocate, among hundreds of cases as recorded by himself, that the argument is sustained by few, and in all fairness we confess a doubt as to the pertinence and value of most of these.

Is not this conclusion in accord with our own experience? What physician to-day expects that in a given number of cases of phthisis as they come to him, any small proportion will recover without the help of medication or change in hygiene or environment? Or to put the question more directly, who has so much faith in the doctrine of self-limitation that he would trust in the slightest degree in planning for the future good of his patients?

So much as we know of the true pathology of phthisis is opposed to the doctrine of self-limitation. In the constitutional predisposition of the general morbid condition which Flint speaks of as the essential disease, we now recognize only that degeneration of the body in whole or in part, which favors the reception and development of the specific factor of tuberculosis. So long as no bacilli are found, the disease cannot be proven to be tuberculosis. The tubercular cachexia is a misnomer except so far as it is limited to conditions which favor the invasion of the essential germ.

In the ordinary case of tubercular phthisis we now know that we have not only the constitutional fault, characterized, as Sir Andrew Clark has it, "by a progression of symptoms with an ulcerative or suppurative destruction of a more or less circumscribed, non-malignant deposits in the lung," but in addition, we have a specific morbid change, the result of a specific cause. I need not weary you with a discussion of the exact relation of the bacillus to tuberculosis. Whether the bacilli are the cause or the result of the rapid disintegration is not the question in point. Whether these or their ptomaines, or both are the active factors, may some day be fully decided. This much we know, that where the changes have begun which result in those morbid products in which the tubercle bacilli are found, we have to deal with an active, relentless, progressive foe to human life.

Let us but remember that the bacillus readily enters a mucous membrane denuded of its epithelium and passes down to the lymphatics and vessel walls; that according to Netschnikoff and Naegeli it inaugurates a struggle with, and rapidly destroys feeble organic cells, and we must forever abandon all preconceived ideas of the self-limitation of phthisis.

Our author says "there should be no room to doubt as to the accuracy of the diagnosis," and the researches of the bacteriologist have placed within our reach the essential element in the diagnosis of tuberculosis, but the knowledge of the existence of this element is directly opposed to the doctrine of limitation without extrinsic aid.

Therefore, clinically and pathologically, we must have further evidence of self-limitation. I grant you that well proven cases get well. It must be admitted that treatment has in some instances been successful; that resistance has been made to the cell invasion of the bacilli and that the general systemic fault has been corrected. My position is, however, that in every such case there has been some helpful treatment administered, some beneficial hygienic or climatic change accomplished.

Our deductions must, therefore, be:

1. That there is no sufficient clinical evidence to warrant us in believing that by self-limitation as defined by Prof. Flint, pulmonary phthisis may end in recovery.

2. The pathology of phthisis is equally opposed to the proposition.

3. Although phthisis is not self-limited yet limitation is possible through "extrinsic influence derived from hygiene and therapeutics."

One word in conclusion. To no one does the medical profession of America owe more than it does to the memory of Dr. Flint. Though dead, his words live. With reverent hands would we lift the record of his work and in the same fairness which he admired and practiced, would we examine his teachings. In this city which he loved so well, and in which was once his home, no words are needed to recall his greatness.

May the analysis of the argument which we have made, and even the widely different conclusions which we have reached, be counted an honest tribute to the great influence of him whose lips are forever sealed.

MEDICAL CONGRESS IN RUSSIA.—The fourth congress of the Society of Russian Medical Practitioners will be held at Moscow, the day of meeting being fixed for January 3, 1891. The work is to be done in twelve sections.

A NEW OPERATION FOR STRICTURE OF THE RECTUM.

BY M. G. THOMPSON, M.D.,
OF HOT SPRINGS, ARK.

In no reports upon rectal surgery has the writer seen presented the principles and procedure of the following operation for stricture of the rectum, and therefore the novelty is claimed in the title to this report.

Mrs. B., æt. 32, giving history of syphilis, with a subsequent rectal stricture and fistula in ano. The symptoms of stricture, growing worse each month and not having more than one operation on bowels a week, brought the patient under examination July 28, 1890. After inducing anæsthesia examination revealed a fistulous tract from superficial sphincter opening one and one-half inches from anus, also flaps or folds of mucous tissue around the anus; within were infiltration and thickening of mucous and submucous structure, and about three inches above the anus an annular stricture almost occluding the rectum.

After dividing the fistula and superficial sphincter, a pair of uterine dressing forceps were introduced through the stricture, by means of which sufficient dilation was made to introduce a probe pointed bistoury; two incisions were then made well dividing the stricture bi-laterally. Pratt's large dilating speculum was then introduced dilating the rectum to its full capacity, being frequently turned in various directions for the purpose of thoroughly using a douche of warm carbolized water, and curette and silver nitrate to all suspicious pockets.

Keeping up these antiseptic precautions for about twenty minutes and the speculum remaining *in situ* paralyzing all muscular action, no difficulty was experienced in bringing down the stricture with a tenaculum and securing with an Emmett needle armed with catgut suture or loop; the mucous membrane from the stricture to the anus falling in folds and protruding from the anus like external pile tumors, an assistant then holding the stricture in position by means of the loop, the posterior folds of mucous tissue were removed with tenaculum and scissors; then making an incision half way around the anus posteriorly and removing corresponding cicatricial tissue in the stricture, the two surfaces thus denuded were securely brought together with catgut sutures. Nothing was at the time done with the protrusion of mucous folds on the anterior surface.

The usual dry dressing was then applied, and patient taking an opiate was put to bed. No suffering or inconvenience followed. The bowels moved each day and on the eighth day patient returned, when with the aid of sol. cocaine the anterior folds left protruding on the day of the operation were snipped off with tenaculum and scissors. Entire recovery on fourteenth day from first operation. No trouble has arisen since.

Note the following suggestions, which will improve the plan of procedure:

1. Don't divide stricture before it has been brought down to the anus, and do not allow it to return after dividing.

2. Don't bring the stricture down with the tenaculum, but use hæmostatic forceps to avoid laceration and puncturing.

3. Don't paralyze with speculum; use fingers to avoid rupturing rectum at site of stricture, which accident might cause peritoneal complication.

4. If stricture can not be brought down to anus, denude and stitch to muscle.

THE CLINIC.

VAGINAL HYSTERECTOMY.

A Clinical Lecture delivered at the Woman's Hospital of Chicago.

BY FRANKLIN H. MARTIN, M.D.,
PROFESSOR OF GYNECOLOGY POST-GRADUATE MEDICAL SCHOOL OF CHICAGO.

The first patient which we bring before you today for consideration is one upon whom I propose to perform vaginal hysterectomy, for cancer of the cervix and uterine portion of the vaginal walls. The patient is a nulapara, unmarried and but 28 years of age. As you doubtless know, such an early age and domestic condition are two factors which would not ordinarily lead us to expect cancer.

The patient was referred to my department from the out-department of the hospital, about three months ago, for the purpose of giving her the advantage of galvanism, for what seemed simple hypertrophy of the cervix from repeated attacks of endometritis. She was treated on an average of about once a week by myself or the house physician, until about two weeks ago, when, after an absence from the clinic of a couple of weeks, an examination revealed a condition which left little doubt of a rapid degeneration of the cervix, with distinct infiltration of the posterior walls of the vagina. The degeneration had been so rapid that it was with difficulty I could get a specimen for microscopical examination.[1]

A decision was at once made, to operate, and as I have reason to believe from statistics recently gathered, that in the present state of surgery vaginal hysterectomy will give as low mortality in incipient cancer as high amputation of the cervix, I certainly could but give the patient the advantage of the operation which would go the farthest into the healthy tissue beyond the disease.

Preparatory Treatment.—No patient with a cancer of the uterus can afford to wait for any

[1] The microscopical examination revealed unmistakable signs of carcinoma.

imaginary good that may be gained by a long building-up treatment. As well build up a patient before relieving them of the contents of a septic pus cavity.

The patient should be prepared for the operation, effectually but promptly. We seek to get them into the hospital at least four days before the morning of the operation. The urine is examined at once. If convenient the patient should take a steam or Russian bath the first day, and keep herself well protected, with woolen next the skin. The night of the first day a mercurial, say two grains of pil. hydrarg. should be given, to be followed, in the morning, by a sedlitz powder. The bowels should be thoroughly evacuated. The second and last day before the operation the patient is given nothing but the blandest gruels and the bowels are thoroughly washed out four hours before the operation. A bichloride douche is given twice each day the four days preceding the operation, followed in each instance with pure water. No food is allowed for six hours before the anæsthetic is given. A sponge bath of bichloride is given the evening preceding the operation, and the external genitals are thoroughly purified before the operation begins. At this hospital a large dose of brandy is ordinarily given the patient before the anæsthetic, ether, is administered.

It will be noticed that the patient is thoroughly protected as she lies on the table, in body and limbs, with flannel covering. The temperature of the room is 80° F.

Those who have been selected to act as assistants, have thoroughly disinfected themselves, and the few clothes they have on are protected by these aprons and efficient sleevelets, and, therefore, all who have not been duly prepared to assist, and assigned a place, will confer a favor if they will not, under any pretext, volunteer their services.

Operation.—The patient being thoroughly anæsthetized, we will have her put in the exaggerated lithotomy position with the buttock well drawn over the edge of the table, and the limbs supported by two assistants, one on either side, in such a manner that they will each have one free hand with which to hold a Simon's retractor. It will be noticed that the vagina is very narrow, as would naturally be expected in a virgin so narrow, in fact, that it would be next to impossible to remove the uterus through it without enlargement. With this bivalve speculum, for want of something more suitable, I will, by means of the screw adjustment, forcibly dilate the vagina. This brings into relief the strong muscular bands of tension in the posterior and lateral walls of the perineum. With the scissors I will cut through the integument and the muscles beneath on either side, as is occasionally done by an obstetrician to forestall a rupture of the perineum, which seems imminent, and at once I gain the necessary room and can successfully proceed with my operation.

As the retractors are now in place and held firmly apart, we get a fair view of the cervix and the diseased portion of the vagina. You will notice how brittle the tissue is—breaking down and bleeding with a touch of the sponge. On account of the friable condition of the cervix, which practically precludes the use of the vulselm's forceps, I will first transfix the mass, going high, with a strong silk ligature, which will serve, when tied firmly, as a means of handling the uterus. By means of this ligature, I now draw the cervix well down to the mouth of the vagina and thoroughly cleanse it with a strong 1 in 500 bichloride solution, and after all secretions are washed away by the irrigator, which contains a like solution, of strength 1 in 10,000, I make the first incision through the vaginal mucous membrane, anteriorly, with curved scissors and keeping well away from the diseased tissue, extend the incision posteriorly either way until the cervix is half encircled by it. The cervix is now drawn forward, and the incision is extended either side and posteriorly until the uterus is completely freed from its vaginal attachment, the incision completely encircling it. I now draw the cervix well down and back again, and with blunt-pointed scissors carefully dissect the cellular connection between the anterior wall of the uterus and the bladder. In doing this, you will notice I keep the point of the scissors very close to the body of the uterus, making it almost impossible to wound the bladder. As the dissection advances, I carefully draw upon the uterus until I feel that I am approaching the duplicature of the peritoneum between the two organs. As the assistant now continues the tension upon the cervix, I examine with my finger to ascertain how near I am to the peritoneum. I find by the characteristic yielding impression given that I am about to enter it. With a little pressure with the index finger, therefore, I push through it at its point of deflection from the uterus on to the bladder, and enlarging the opening sufficiently to enter the index finger of the other hand, I forcibly separate the two fingers, laterally tearing an opening through the peritoneum which extends to the unyielding broad ligaments.

Thus we have the bladder separated from the uterus, and the peritoneum open in front around to the broad ligaments. Some operators discard the scissors entirely in separating the bladder and uterus after the vaginal mucous membrane is incised, dissecting the cellular tissue with the fingers. This requires considerable pressure and tearing oftentimes, and I believe the bladder is in greater danger of being torn by the method, than it is in danger of being wounded with the scissors, properly employed, as I have indicated.

As the assistant draws the uterus well forward

now, I will enter the posterior cul-de-sac, keeping as far from the diseased uterus as possible, at the same time looking out for the rectum. The separation is easily accomplished. I scratch into the most dependant portion of the duplicature of the peritoneum and with two fingers enlarge the opening laterally and anteriorly, until we are again stopped by the broad ligaments. We will now thoroughly wash out the vagina again, with the 1 in 1000 bichloride solution, and again thoroughly disinfecting my hands, I will sweep my index finger over the fundus of the uterus in the peritoneal cavity, to ascertain that there are no peritoneal or intestinal adhesions to the organ, which might complicate the operation. Finding none, I withdraw my finger, and insert through the posterior peritoneal opening a soft, thin, flat sponge, (a ligature having previously been attached to it) in such a position that it will keep the intestines (which always show a great inclination to prolapse) entirely out of the field of operation, and also prevent fluids from entering the peritoneal cavity.

By examination of the broad ligaments, I find them so thick and firm that I shall ligate and cut away the base before attempting to apply the clamp forceps; as I do not believe the forceps powerful enough or large enough, to accomplish a satisfactory compression of the whole ligament. As the uterus is drawn well to the right, I will transfix the left broad ligament at its base with a curved perineum needle carrying this heavy double silk ligature, so that the lower ligature will include the uterine artery in its grasp. The lower ligature is firmly tied and the upper one is carried higher and through the ligament at a point, so that the two ligatures when tied, include about a third of the broad ligament. This ligated portion of the ligament is now cut away, and with ease I can apply the large broad ligament forceps (Byford's pattern) to the remaining two-thirds of the ligament. This done, forceps firmly locked, and the tissues apparently well compressed, the remaining portion of this broad ligament is cut away, being carefully to keep at some distance from the blades of the forceps in order to leave tissue enough to prevent it, at any point, from drawing away from their grasp. As all of the tissues in the grasp of the forceps or ligatures must eventually ulcerate off, we can afford to be generous in this respect even at the risk of including a little malignant tissue.

The uterus being now free from its left broad ligament we will deliver the organ, and apply the ligatures and clamp to the right one without further difficulty. The vagina being small, and the uterus rather large, it is with some little difficulty that we accomplish the delivery of the organ. Having succeeded we will apply two ligatures to the base of the broad ligament, as on the other side, and after cutting away the ligated portion, we easily apply the clamp to the remaining portion. Here we have an opportunity of observing how well the forceps accomplish their work.

The uterus is now severed from its last connection with the body.

The perineum is stitched up with buried catgut sutures, using great precaution to get accurate coaptation of the parts. The forceps are carefully adjusted on either side so as to obtain the minimum tension on the broad ligaments, and we will proceed to make the toilet of our operation.

At a number of points at the original vaginal incision small bleeding vessels are observed as we renew the irrigation. These I will secure with simple hæmostatic forceps. I will now bring down the peritoneal edges posteriorly, and attach, by means of lock forceps, to the edges of the posterior vaginal wall. It is desirable to get all freshly torn or cut edges of the peritoneum, as far as possible, which are liable to form adhesions with the intestines, well out of their reach. All bleeding points having now been secured, and the seat of operation well irrigated, we will withdraw the flat sponge inserted early in the operation, preparatory to our final washing. This is done with sterilized water containing no drug.

Everything being clean and comparatively dry, and the intestines well pushed up, I will bring the blades of the forceps clamped to the broad ligaments, as near together as possible, and parallel; a strip of iodoform gauze is then crowded between them to just beyond their distal ends, and the vagina loosely packed below with a continuation of the same strip. The handles of the two broad ligament forceps having been tied together after their locks have been secured, they are propped in an easy position with iodoform gauze, the vulva is sprinkled with iodoform, and the patient is returned to a warm bed.

After-treatment.—We will now go into the wards where we have a convalescing patient upon whom vaginal hysterectomy was performed Jan. 14, 1890, or about four weeks ago, for cancer of the uterus. She is now able to sit up in bed with the aid of the bed rest, and expects to leave the hospital Sunday. Her recovery has been uninterrupted, ideal, in fact, no pain, no elevation of temperature, no untoward symptoms of any kind.

The iodoform gauze which was loosely packed around the forceps was not removed for seventy-two hours. The patient was given no nourishment for forty-eight hours, and for the first twelve hours not even the smallest quantity of water was allowed. The lips were occasionally sponged with a moist sponge, and her mouth was from time to time rinsed with warm water, great care being taken to impress upon her the necessity of not swallowing even a small quantity. After the first twenty-four hours, as the stomach seemed to be perfectly quiet, a couple of drachms of water

were given every hour, and at the end of forty-eight hours barley-water was substituted. The next day a larger quantity was allowed at longer intervals, and as the stomach was in a condition to assimilate more nourishment, beef tea and thin gruels were gradually added to the diet list, until at the end of two weeks a small amount of solid food was allowed. The bowels were moved at the end of seventy-two hours by means of a saline, followed by an enema of soap and water.

I have stated that the iodoform gauze was not disturbed for forty-eight hours, and then only as much as was unavoidable in removing the forceps. These instruments were carefully removed at this time, the gauze being allowed to remain twenty-four hours longer. At this time (seventy-two hours) we can be reasonably certain that the peritoneum is closed. The gauze was removed and a vaginal douche carefully given of 1 in 5000 bichloride, with a bulbous nozzle with right-angled stream, the distal end being inserted only about two inches, the force of the stream being just sufficient to get a continuous flow, and with every precaution to maintain a free exit. All of these precautions are absolutely necessary the first few days, in order to insure that no water enter the peritoneal cavity, if the latter should for any reason be unusually slow in closing. Sterilized water should always be used to displace the bichloride solution, in order to prevent mercurial poison. Douches of this character were given twice daily after the first three days until all signs of necrosis had disappeared, and then once a day until the present time. Two ligatures attached to the base of the broad ligaments were discharged with the douche fourteen days after the operation.

Summary.—The operation that you have witnessed this morning was first performed in this country in 1850. The mortality at first was so high, on account of the crude methods employed, and a lack of proper understanding of the true principles of surgery, that it was with difficulty that surgeons could be induced to undertake the operation. Even now many surgeons prefer to temporize with scraping, amputation, and, if the patient holds out, high amputation, rather than give the patient at once the benefits of an operation which will give the greatest possible chance of an ultimate cure.

The only alternative between this operation and sure death, for a patient suffering with even incipient cancer of the uterus, is high amputation of the cervix. High amputation of the cervix, according to the latest reliable statistics, in the hands of its most experienced advocates, gives an immediate mortality of more than 6 per cent. In the hands of equally experienced operators, I believe that the operation of vaginal hysterectomy, in the same class of cases in which high amputation would seem to offer a probable means of cure, will give us a mortality fully as low as statistics give us for high amputation. In this hospital, for instance, with all kinds of cases, some of them almost desperate, we have had no deaths, and the operation has been performed twenty times by three operators, as follows: Dr. Henry T. Byford, 14, Dr. D. T. Nelson, 2, myself, 4.

If the operation can be rendered as safe as high amputation, it does not seem necessary to further argue the question, to convince any one that the more radical one should always be selected for cancer.

It seems to me that vaginal hysterectomy is to be the means of the future of saving many women from one of the most horrible deaths of which it is possible for mortal to conceive. Seek, in your practice, to make early diagnoses of this dread disease, and then be prompt to give your patients the benefit of the most radical and rapid means of relief that we know.

NOTE.—The patients mentioned in this paper both made ideal recoveries, and are (August 6, 1890) in perfect health.

MEDICAL PROGRESS.

RECENT INVESTIGATIONS UPON THE THYROID GLAND. — Since the crucial experiments of Horsely and others regarding the connection between the nervous system and that gland, numerous investigators have applied themselves to the study of the functions of this organ. Recently these articles have been abstracted in *Schmidt's Jahrbücher*. The first from the pen of PROF. RIBBERT (*Virchow's Arch.*, cxvii) deals with the regeneration of this gland after extirpation. The experiments were conducted upon dogs and rabbits and consisted in removing small portions from one half of the thyroid body and at different times after the operation removing that portion of the gland. The careful microscopical examination of these showed that in this, like other glands, there was a functional regeneration. New portions of the gland developed by infiltration from cells in the old alveoli, that were at first small without lumen, but later enlarged, developing a cavity filled with colloid material. Small defects were filled with newly developed gland tissue; larger ones presented upon their edges, new tissue, while the central portions were filled with connective tissue.

DR. HERMAN STIEDA (*Beitrasur pathol.—Anat. und allgm. pathol.*, vii, 1890) has confirmed the observations upon rabbits, made by Nauwerck in 1888. That these animals bear extirpation of the thyroid when cats and dogs are destroyed by the operation. The relation in weight of the petuitary body in rabbits he found to be 1:3.3,

while in dogs, the thyroid is 15:20 times the weight of the petuitary body. Stieda found that there was an increase in weight and volume of the petuitary body after extirpation of the thyroid gland. The enlargement consisted of vacuolation and an increase in the large cells. Stieda is of the opinion that this enlargement corresponds with an increase in function, that in part takes the place of the extirpated thyroid.

Rich and Ewald (*Arch. f. d. ges. Physiol.*) have found that the removal of the thyroid causes no perceptible alteration in the health of pigeons. Their work was undertaken with reference to the earlier observations of Langendorff and Ewald, in which they referred the difference in the loss of the thyroid observed in dogs and rabbits, to the difference in diet. They, therefore, chose pigeons as representing a pure vegetable feeder, and found that the loss of this gland did not in any way affect the health of the animal.

It would have been of great interest in the light of Stied's communication if these later authors had observed the condition of the hypophysis in the operated birds, and the relation of this organ to the size of the thyroid in birds generally. While so much has been added to our knowledge of the thyroid in the last few years, a careful study of recent literature only shows how much, regarding its functional relations, still remains to be explored.

An Undescribed Trophic Affection of the third Phalanges.—Rosenbach (*Central-Blatt für Nerven Heilkunde*, August, 1890) claims to have discovered a hitherto undescribed trophic disturbance in the third phalanges. The disease consists essentially of an enlargement of the tubercle at the base of the phalanx, preceded and accompanied by pain in the part. The disease is almost exclusively found in women, from 30 to 50 years of age, and is especially frequent in those approaching the climacteric. The author has seen one or two cases of the trouble in men, but it is relatively very infrequent as compared with the number of women attacked. The disease is usually symmetrical, attacking both hands in the same way, and confines itself strictly to the dorsal side of the third phalanx, the thumb always remaining free. It is preceded and accompanied by changes in sensibility, formications, heat flashes, numbness, etc., in the region of the ulnar and radial nerves.

The author attributes the affection to trophic disturbances in the nervous supply of the periosteum, similar to the special changes in the nerves of the skin, found in herpes.

The differential diagnosis lies between arthritis deformans and gout. The first is distinguished by a very different localization in the large joints and in the thumb, the irregularity of the swelling, and the involvement of the joint surfaces which remain free in the trophic disturbance under consideration. Gout is less easily differentiated, but here we have the general diathesis and above all the slow increase in the enlargements, without redness or swelling of the parts, and the peculiar local nervous symptoms are wanting.

Lister on the Actual State of Antiseptic Surgery. — (Tenth International Medical Congress.) Since Koch made known his method of the culture of microbes on solid media, there has been considerable extension of our knowledge of microörganisms, and of the means by which the animal organism defends itself against them. Metchnikoff has demonstrated that the migratory cells nourish themselves like amœbæ and have a special taste for bacteria which they absorb and digest, thus preventing their indefinite propagation. He calls these migratory cells "phagocytes." This theory explains much that seems mysterious in regard to the relation of microorganisms with wounds. For example, in the operation for hare-lip, the posterior termination of the wound is constantly bathed in saliva which contains numerous kinds of septic bacteria. Yet these bacteria do not penetrate the fibrin which glues together the two cut surfaces, which they certainly would do if the surfaces were composed of a chemically inert surface devoid of life. This is due to the "phagocytic" action of the cells which are present in the lymph soon after its effusion.

This theory also explains why the use of silk ligatures which have not been subjected to antiseptic preparation may not be followed by unpleasant consequences. Zeigler has shown that leucocytes penetrate rapidly into the very small spaces between plates of glass or other foreign bodies which are chemically inert and have been introduced into the tissues. These leucocytes ought therefore to be also able to glide into the intervals among the fibers of the silk thread, and to destroy all the microbes which are able to lodge there.

The success attained by Bantock and Lawson Tait without the use of antiseptics appear a stumbling block. But in reality the practice of these surgeons is not devoid of antiseptic means. They purify their sponges; they observe strict cleanliness; this is certainly an antiseptic precaution. They wash the peritoneum with pure water in order to free it from coagula without wounding the peritoneal surface by rubbing it with sponges.

The drainage of the peritoneum is another antiseptic measure; moreover, it is necessary to avoid the application of strong and irritating antiseptic solutions to the peritoneum. But it would be wiser to assure, by means of antiseptics, the entire absence of microbes from the hands

and instruments; as to the water used for the toilet of the peritoneum, it is better to have recourse to a feeble sublimate solution (1 to 10,000 for example) than to simple boiled water.

In the surgery of the rest of the body, the employment of stronger antiseptic solutions does not present the same inconveniences.

As to the spray, Lister regrets that he formerly recommended it to destroy the microbes of the air. There is not sufficient time for the microbes to lose their vitality in the vapor of the spray.

Since he has abandoned the spray, Lister surrounds the site of the operation with cloths soaked with antiseptic solutions. If, besides the spray, washes and irrigations are abandoned, vigilance ought to be redoubled.

Reasoning, by analogy, from subcutaneous wounds, Lister says that a wound made under antiseptic precautions could be immediately sealed by covering the line of union by an antiseptic varnish. But he claims that carbolic acid by irritation excites a secretion of serum so abundant that its issue necessitates an opening. Hence the drainage of wounds.

After the recent method of treating wounds with sublimate, the secretion is less and drainage less necessary.

As to external dressings, some surgeons have thought to unite simplicity and security by using cotton wadding sterilized by heat. But this wadding, being simply aseptic, only prevents infection as long as it is dry; once wet through to its external surface by secretions, it may become a septic mass, and there are always wounds where the secretion will remain abundant.

In some cases, a perfectly antiseptic dressing may be a matter of life and death. For in these cases with abundant secretions, only antiseptic chemicals can prevent the development of septic organisms. With this end in view, Lister employs a combination of the cyanides of zinc and mercury, which is a sufficiently strong antiseptic, and is moreover non-irritating.—Translated by Dr. F. Neuhoff, St. Louis, *La France Méd.—Weekly Medical Review.*

LATERAL PROSTATECTOMY.—DITTEL (*Wiener Klin. Wochenschr.*) refers the retention in hypertrophy of the prostate largely to the lateral lobes, and thinks that any operation must reach these lobes in order to overcome their valvular action in causing retention. This was shown by experiments upon cadavers. When a body with normal urethra and bladder was suspended, water injected into the bladder, promptly passed out by the urethra; such, however, was not the case where the prostate was enlarged bilaterally. In these latter cases, when a resection was made of the lateral lobe, the fluid passed rapidly away. The excision of a wedge-shaped piece from the middle lobe was without result.

Dittel has not as yet tried his method upon a living patient but gives full directions regarding the best methods of operating, from his dissection of cadavers. The incision should begin at the point of the ischium and extend to the middle of the external sphincter, circling the latter as far as the raphé. This cut opens the ischio-rectal fossa from which the dissection is rapidly made exposing the lateral lobe of the prostate. The rectum should be previously tamponed, to prevent wounding and aid in separating that structure from the enlarged prostate.

The author recommends an early operation in these cases, while the urine is yet normal and the patient comparatively free from pain.

ALCOHOL AND CHILDHOOD.—PROF. DEMME, of Berne, at the recent International Alcohol Congress at Christiania, presented an interesting report of an investigation which he had made as to the influence of alcohol upon children. Having unusual opportunities for this study from his position as superintendent of a hospital for children, he selected two groups of ten families each, under similar external environment. One group of 57 was manifestly affected more or less by alcohol; the other of 61 was unaffected, or at least very little affected. Of the 57 who exhibited the effects of alcoholism, 20 had inebriate fathers, the mothers and grandparents being moderate drinkers. Only 45 per cent. of these (9) had healthy constitutions. Thirty-one had inebriate fathers and grandfathers, but temperate mothers and grandmothers. Only 2 of these, or a little over 6 per cent., were healthy. Six children had parents and grandparents intemperate; 1 of these survives, a sufferer from epileptic seizures. In remarkable contrast is the state of the 61 children belonging to temperate families, 82 per cent. of whom enjoy good health, 3 have died, and 8 are in bad health. Prof. Demme also reported the results of an experiment on several children, from whom all intoxicants were kept during eight months, and to whom the usual allowance of wine and water was given during the remaining four months of the year. These children were reported to have slept more soundly and longer, and to have appeared in better spirits and more active, during the non-alcoholic eight months than during the alcoholic four months.—*British Medical Journal.*

NEURASTHENIA AND NASAL DISEASE.—The causes of neurasthenia, obscure as they are, are not to be sought in some slightly abnormal condition of an organ such as the nose; and to imagine that local treatment of this, or indeed of any individual organ, is going to reward us with successful therapeutic results, is to subject ourselves to such failures as Dr. More Madden very honestly has recorded. Many women live only for the

gynecologist, and though we would not for a moment impute such conduct to members of a noble profession, there is no doubt that gynecology, in some unscrupulous hands, has not been free from chicanery in a class of patients in whom the loss of nervous control, which is the essence of neurasthenia, has rendered them ready agents to such practices. It would be a thousand pities where rhinology to incur the same reproach. To remove a vital cause of irritation is right and proper, but to assert that the slight pathological abnormalities met with in many nasal organs, even when they are accompanied with nasal catarrhs, is in a real proportion of neurasthenic individuals a potent cause of their troubles is, we think, to take up an untenable position. Those who, in such cases, look only to intra-nasal surgical treatment, and fail to appreciate the necessity of getting behind these apparent symptoms, and treating the general nervous system as of primary importance, will be doomed in their specialistic narrowness to failure. To say that such treatment, even if it does no good, will do no harm, is not correct. Very great aggravation of the patient's sufferings may follow injudicious and meddlesome interference. It is in neurasthenic patients, of all others, that we should exercise the very greatest discrimination in recommending or carrying out surgical treatment.—*Journal of Laryngology and Rhinology.*

HYSTERICAL FACIAL PARALYSIS.—The statement of Charcot that paralysis of the facial nerve, is never of hysterical origin, has recently been negatived by HUET (*Nederl. Tijds. v. Geneeskde. —Cent.-Bl. f. Nervenheilkde.*) who reports a typical case of central paralysis of the facial nerve in a girl twenty-one years of age. The trouble came on immediately after a severe fright, and was followed by pronounced symptoms of hysteria, globus painful points, vomiting, hemi-anæsthesia, etc. Later hystero-epileptic attacks developed, and she presented a complete picture of hysteria gravis. Van Deventer also mentions a case in which facial paralysis came on in April and was still noticeable the following October. A later observation showed that the paralysis had entirely disappeared. This patient also presented the typical features of hysteria gravis.

CREMATION.—THOUVEURT, before the Section on Hygiene, of the French Association for the Advancement of Science (*La Semaine Médicale*), maintained that the present outbreak of cholera in Spain was due to the exhuming of the bodies of the victims of the epidemic of 1885. He regards cemeteries as vast depots of infection for the pollution of the air and water with pathogenic germs, and the sole remedy for this condition lies in cremation. In conclusion he proposed the construction of crematories in cities and villages, and the making of cremation compulsory in cases of death from infectious diseases. He invited the Section to approve his conclusions, but they decided that for the present it was unwise to make any change in the law, as it probably could not be enforced. They strongly *advised* cremation in infectious diseases.

SEXUAL PERVERSION.—MOTET reported to Société de Médecine Legale (*Progrès Med.*) the case of a young man who was arrested for attempting to cut off the hair of a young woman. In his rooms was found a quantity of hair. This individual had a marked neurotic heredity from both the father and mother. He was an intelligent and skilful mechanic. In 1886, after an attack of herpes intercostalis, he began to act queer and conceive the imperative conception to cut off women's hair. As soon as the shears touched the hair he had an erection, and the cutting was followed by an ejaculation. He was declared insane and irresponsible, and was sent to an asylum, where after a time he recovered from his peculiar propensity, and later resumed his profession.

OPIUM AND COCAINE IN INCOERCIBLE VOMITING.—At the French Association for the Advancement of Science Congress of 1890, in the Medical Section, M. TYSON, of Paris, read a paper on the association of opium and cocaine in the treatment of rebellious vomitings of pulmonary tuberculosis, divers gastritis, etc. In a large number of cases the author claims that the best results followed the exhibition of pills, each containing one centigram of hydrochlorate of cocaine and an equal quantity of extract of opium. Of these from 5 to 6 were given daily, preferably ten minutes prior to the introduction of food or drink into the stomach. The same treatment has been found excellent in allaying the pain, nausea, and vomiting of alcoholic gastritis, cancer of the stomach, dilatation of the stomach, etc. As the pills are very deliquescent, it will be necessary to add the usual corrigens in such cases.—*National Druggist.*

HERNIA.—PROF. KUESTER (*Centralblatt der Chir.*, No. 36) mentions, in connection with radical operations of old and large inguinal hernia, a new danger hitherto overlooked, or at least not referred to. In all these cases the abdominal cavity is so much reduced in size as to admit, but with some difficulty, the protruded intestine. On one of such occasions the patient commenced to vomit and then became asphyxiated. Tracheotomy, promptly performed, relieved the air passages at least in part, of some food which the emesis had forced into it. But the patient, nevertheless, died on the table. Kuester thinks that the stomach should previously have been washed out, and the mechanical expression of its contents obviated.—*St. Louis Clinique.*

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SATURDAY, OCTOBER 18, 1890.

SOME MEDICAL PROBLEMS CONCERNING IMMIGRATION.

It is evident that many important medical questions of the future will depend on the present movement of populations. This is apparent in two ways: First, the increasing movement of the rural population to large towns and cities, and second, the great tide of emigrants that comes flowing in on our shores yearly. In the former the increase in a century has been from one to twenty-five to one in three. This increase has been general all over the older parts of the country. Agriculture is less attractive, although carried on with less muscular labor every year, owing to the rapid improvement in labor saving machinery. A large class of robust, healthy men are constantly filling up the towns and cities, living in less healthy surroundings, and in conditions more unfavorable to health and longevity. They suffer from diseases that are largely influenced by these changed conditions of living; and their children bear unmistakable marks of race degeneration, springing from the hygienic neglect of the parents. As a rule the families of the more prosperous of the city residents, who are born and bred in the city, are "switched on the road to extinction." They are the largest patrons of physicians and suffer from the most complex disorders, while their country cousins of the same race stock are well and vigorous. The vigor and brain force of city populations are only kept up by constant immigration from the country.

This movement of the population is at the expense of its longevity, and is attended with premature exhaustion and decline. The class of diseases that appear in city families of the same social status are rarely seen by the country physician. The acuteness needed to differentiate these obscure diseases, where constitutional degeneration and exhaustion are present, is not called for in the country, because the symptoms are clear and prominent and less complex. The wise city physician early recognizes this decline of vigor and urges a retrograde movement to the country.

It is evident that somewhere in the near future the towns and cities of the country will become crowded beyond their capacity, to support the population rationally, and a receding wave of immigration will set in towards the country. Some great law (not clear at present) will eventually regulate this ebb and flow of population from country to city and back again. In the second great movement of races, viz., the immigration from other countries, the problem is wider and the questions more complex. Once this movement was welcomed, and the vigor and prosperity of the country seemed to depend on it. To-day grave perils appear to gather about this army that is steadily landing on our shores.

For the year past, ending July 1, 1890, half a million persons came to this country to stay. Compared with former years these immigrants are steadily and distinctly deteriorating. While the numbers are increasing the physical and mental status is lower. Large numbers are not only incompetent to become self-supporting, but are diseased in both body and mind. They early become burdens on the community, filling up hospitals, almshouses and insane asylums, and are centres of degeneration, antagonizing every state of healthy life and living. Strenuous efforts are made to shut out convicts, paupers and idiots, with partial success; but mental paupers and anarchists, and defectives of every degree rush into our civilization, and are permanent obstacles to every advance.

The medical problems which grow out of this disorganizing element are more serious every year. Physically the unsanitary conditions which they foster, and the nidus of various diseases which gather about them, are always perils to the community. Mentally they join the armies of the

"squatters" and "camp followers" who prey on civilization, and the evolutionary march of the race. While large numbers of these immigrants are swallowed up in the vast farming regions of the far West, and lay the foundation for populous States and cities, it is the duty of the medical man to insist on boards of health, and strict sanitary regulations, and laws which will require the proper observance of all measures that build up public health.

This incessant movement of strange people in crowded cities and lonely country towns, can be more largely influenced by the physician. If he is a scientific man, alive to the vast formative influences that are about him, and demands sanitation, with education, that shall practically apply to all the surroundings, he is doing the highest work possible in the profession. As a reformer in breaking up the wretched tenement houses, and other nuisances, that these poor immigrants build up, and saving life by demanding better conditions of living, he is approaching very near the great ideal physician. The civilization of America will be very largely controlled by physicians, working along lines of sanitary science, pointing out the laws of heredity, of environment, of climate, education, and other forces which fashion and mould the race. How far these armies of immigrants from country to city and back again, and from all climes of the globe, will be assimilated and at last settle into one great race of homogeneous people, will depend very much on the present teachings and interpretations of the laws of nature by the physician of the city, in the lecture-room or by the bedside, and the country physician in his visits to the lonely farm houses.

POISONS PRODUCED BY BACTERIA.

A few weeks ago we referred editorially to some experimental work of ROUSSY upon the pathology of fever, in which he demonstrated what appears to be a fever producing albuminoid, which he termed "pyretogenin;" we have now to mention the labors of BRIEGER and FRÄNKEL (*Berl. Klin. Wochenschr.—Centralblatt für Physiologie*) upon the toxic substance produced by the diphtheria bacillus of Löffler.

Pure cultures of the bacillus were prepared in large quantity in pepton-broth with or without the addition of glycerine. ROUX and YERSIN had previously separated the toxic substance from bouillon cultures and believed that it belonged to the class of enzyms, a conclusion which the writers cannot indorse. They succeeded in obtaining the substance dry and class it among the albuminoid bodies, the "toxalbumen" as they name them.

The cultures were at first passed through a Chambelain clay filter. The germ free, lemon yellow, clear filtrate proved to be very poisonous to animals and produced symptoms similar to those caused by inoculation with the bacillus including the peculiar paralytic phenomena of diphtheria. When heated to 60° C. it lost most of its toxic properties. It resisted acidifying with sulphuric acid, and steaming to 50° C. An examination for ptomaines and volatile bases gave a negative result. It also failed to diffuse through membranes into water or a solution of sodic chloride. It was precipitated by ammonic sulphate and sodic phosphate as well as absolute alcohol, the latter method being the one usually employed. After dialysis and drying *in vacuo* the substance was obtained as a snow-white, amorphous, granular powder, easily soluble in water, from which it was not thrown down by boiling, sodic sulphate, sodic chloride, magnesic sulphate, plumbic acetate or by dilute sulphuric acid even when heated. It is precipitated by carbonic acid or other reagents that throw down albuminous bodies. With Million's reagent a red color was produced, as well as the biuret and xanthroprotein reactions. The plane of polarized light was rotated to the left. From these various reactions the writers conclude that this substance is closely related to serum albumen, though the ultimate organic analysis showed a composition closely allied to pepton, with the following percentages: C. 45.35, H. 7.13, N. 16.33, S. 1.39, O. 29.80.

This body in a pure state was very poisonous, 2½ milligrams for each kilogram of body weight of the animal experimented with, proving fatal, though sometimes only after weeks or months. (This confirms earlier observations by Roux and Yersin.) Very small quantities injected subcutaneously caused abscess and necrosis, and later wasting of the body.

The authors believe that this "toxalbumen" is produced from the albumen of the infected part in the ordinary diphtheritic process, and in this

connection recall the "Ichthyotoxicum" which A. and N. Mosso obtained from the serum of the murex, and the poisonous albuminoids obtained from plants by KOBERT and STILLMARK.

Further experiments were frequently hindered by the fact that cultures lost their virulence, and stopped producing the poisonous substances. In cultures that had lost their virulence an albuminoid body was found that could be distinguished from the other by its dark brown color and non-toxic properties.

It will be seen from the foregoing that great progress has been made in isolating the peculiar toxic substances produced by microörganisms. It appears now as though it would soon be necessary to admit, as suggested by Vaughan, before the pathogenic character of microörganism can be said to have been established, that its peculiar toxic product shall have been isolated and studied.

MALPRACTICE SUIT DECIDED.

The suit brought by Mr. Sims against Dr. A. H. Parker, of Chicago, the well-known expert truss adjuster, for $15,000 damages, was tried before Judge Baker recently, and after the evidence on both sides had been closed and the counsel for the prosecution had presented his side of the case to the jury, the Judge instructed the jury to return a verdict for the defendant. The evidence showed that Sims had worn a truss several years on account of an inguinal hernia before he applied to Dr. Parker, and for several months he had suffered at times with pain on the same side as the hernia. After the truss fitted by Dr. Parker this pain continued to recur, and sometime after he had passed from the observation of the latter, a psoas abscess matured and pointed somewhere about the groin or upper part of the thigh, and not being efficiently treated by thorough drainage and antisepsis by his attending physician, the plaintiff suffered a protracted and painful sickness, but from which he ultimately recovered. His suit against Dr. Parker was founded entirely on the allegation that the truss fitted by the latter had caused the abscess. The evidence on the part of the defense showed that the defendant was an experienced specialist in the fitting of trusses of good reputation; that the truss used was of good quality and proper form, and that the pressure of the pad would have no tendency to induce the formation of an abscess. There appearing thus no evidence to incriminate the defendant the Judge very properly decided that there was no evidence for the jury to consider, and therefore required a prompt verdict for the defendant.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The sixteenth annual meeting of this Association convened at Louisville, Ky., on October 8, 9 and 10. A brief *résumé* of its proceedings will be found in the present number of THE JOURNAL. While in full affiliation and sympathy with the American Medical Association, and in no wise sectional in its preferences or purposes, it nevertheless represents a large and growing constituency, and is numbering in its ranks some of the most promising medical men in this country.

The present meeting was a notable success. DR. J. P. MATTHEWS, its widely-known and popular President, came from a sick-bed to the fulfilment of his official duties, which he performed with heroism, wisely and well. The Secretary and Executive Committee have rendered valuable assistance, and the general arrangements were complete.

A very full and valuable programme had been prepared, and three days did not suffice for its presentation. The papers and the discussions will rank with those of any of our medical organizations, local or National.

We are the more profoundly impressed with the ability as well as of the number of medical men in America who can ably represent the profession when we note the character and the work of the men of the Mississippi Valley as they were convened at Louisville. The writer or the speaker who is impressed with the idea that in any one locality the ability or aristocracy of the profession is centred, is both a man untraveled and unread. The need of the times is that the strength of a score of individual organizations shall be so unified and harmonized that a National representation of our profession shall by such union be secured, and such a National Association as may be possible in no other land.

With reference to the entertainment of visitors it is enough to say that the meeting was in Louisville, and that the profession were able to bring to their help the beauty, brilliancy, the wit and

talent of its fair ladies, and as in times past, so again the receptions were magnificent.

So long as the Association shall hold to its purpose of strictly scientific work and permits no social attractions to trench upon its working hours, so long it will be in every way helpful to its members.

The popular address by DR. JOHN A. WYETH was a model of its kind, and that portion which compassed the subject of clinical instruction is worthy of permanent record.

The onward progress of medicine in this country will be more and more assured by the multiplication of such meetings as the recent one at Louisville.

EDITORIAL NOTES.

POSTPONEMENT.—The Committee of Arrangements have postponed the next meeting of the Tri-State Medical Association until November 19 and 20.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION will hold its annual meeting at Atlanta, Ga., on November 11, 12 and 13. Members of the medical profession are invited to attend. The Secretary is Dr. W. E. B. Davis, Birmingham, Ala.

A DESERVED COMPLIMENT. — Dr. Benjamin Ward Richardson, F.R.S., of London, Eng., has dedicated the sixth volume of his original work "The Asclepiad," to Dr. Joseph Jones, of New Orleans, La., in the following words:

To Joseph Jones, M.D., Professor of Chemistry and Clinical Medicine, in the Tulane University of Louisiana: A model student of medicine, always seeking, always finding, always imparting, with unwearied industry, new and useful knowledge to the great Republic of Medicine, Science and Art, this the sixth volume of the "Asclepiad" is sincerely dedicated.

Dr. Richardson is the most eminent living British writer and authority in experimental therapeutics and practical hygiene. He has devoted his life to the elevation of the medical profession by his extensive original researches, and to the alleviation of the ills of humanity by his works on insanity and hygiene.

MEDICAL DEPARTMENT OF THE NEWBERRY LIBRARY, CHICAGO.—Excellent progress is being made in the development of a full medical library for the free use of the profession, by the Newberry Trustees. The present library building is at the corner of N. State and Oak streets. The cases for the medical department are completed and several thousand volumes are on the shelves. On the 2nd inst. two hundred and eighty-five medical periodicals were ordered, namely: from the United States, 95; Africa, 1; Australia, 2; Austria, 15; Belgium, 7; Canada, 5; China, 1; Denmark, 3; East India, 1; France, 47; Great Britain, 20; Germany, 59; Italy, 13; Japan, 1; Mexico, 1; New Zealand, 1; Norway, 3; Spain. 4; Sweden, 3; Switzerland, 2. Arrangements have been made for the regular and prompt reception of all the periodicals subscribed for, and before the end of the present month members of the profession will have access to the medical periodical literature of the world. It is hoped that those who have been freely indulging in expressions of impatience, will show their interest by frequent visits to the library. For nothing else will so much encourage the Trustees to make the library grow, as the frequent use of what they have already provided.

ARTIFICIAL MUSK.—A German chemist named Bauer, has discovered and patented a process for making a laboratory musk. The new product is not identical in chemical composition, with the natural article, but it is possessed of the characteristic odor. The process of its formation is said to be by means of the nitration of isobutyltolnene with a mixture of strongest nitric and fuming sulphuric acids. The manufacture of this substance has been begun on a considerable scale. It is said not to be poisonous.

OPERATIONS UPON THE HYPERTROPHIED PROSTATE.—In a paper presented to the Mississippi Valley Medical Association at Louisville, Dr. Wm. T. Belfield, of Chicago, collects 133 cases of operations upon the hypertrophied prostate, including eight of his own, as follows: 41 by perineal incision, mortality 9 per cent.; 88 by supra-pubic cystotomy, mortality 16 per cent.; 4 by combined perineal and supra-pubic incision, none fatal. In 56 of these cases the essential facts before and after operation are furnished; they had been the subjects of cystitis and dependent upon the catheter for periods varying from one to ten years. In all the cystitis was cured; in 38 (two-thirds) voluntary urination was restored and continued during the time of obser-

vation, six months to two and one-half years; in eighteen this function was not recovered. Fifteen of these 56 cases were complicated with stone; excluding these—since it might be objected that the cure resulted rather from the calculus extraction than from the prostatic operation—there remained 41 cases of uncomplicated prostate operations; of these 32 (four-fifths) recovered the power of urination, in 9 this ability was not recovered.

FATAL POISONING AT BELLEVUE HOSPITAL.—It is reported that a patient in Bellevue Hospital, New York, having typhoid fever, recently lost his life in consequence of an error on the part of a nurse. The house physician had prescribed for the patient a drachm of a mixture containing one part of carbolic acid to sixteen parts of glycerine, but pure carbolic acid was administered instead. The verdict of the coroner's jury censured the nurse for his carelessness. The jury also found that this negligence of the nurse "was in part attributable to the authorities of the hospital, who neglected to label properly the medicine prescribed by the regular physician, and who allowed made-up prescriptions, for internal use, to be mingled in the same chest with poisons of a violent nature, intended for external use only, and the whole to be placed in the control and custody of inexperienced nurse-pupils, and in this case, of one below the average intelligence."

CHLORIDE OF AMMONIUM IN ALCOHOLISM.—This drug is said to promptly and completely overcome the narcotic effect of alcohol. It is possible to restore to the use of his faculties one who has been rendered helpless by intoxicating drink, by administering ½ drachm of the ammonium chloride in glassful of water.

A CHOLERA CONGRESS AT ROME.—An International Sanitary Congress has been invited to convene at Rome for the purpose of taking steps to guard against the spread of cholera.

THE fifteenth semi-annual meeting of the District Medical Society of Central Illinois will be held at Decatur on Tuesday, October 28, 1890. Programmes may be obtained on application to the Secretary, Dr. J. H. Miller, Oconee, Ill.

THE MICROBE OF GRANULAR OPHTHALMIA.—*The Lancet*, August 23, quotes the researches of Dr. Shongolowicz, of St. Petersburgh, regarding the microbe of granular ophthalmia, from which it would appear that it is not a micrococcus, as has been described by several observers, but a short bacillus. The length of this rod is from .002 to .00075 millimetre and its breadth from .0003 to .00005. Its preparation and staining are not easily managed, but gentian violet proved to be the best stain. The different segments of the bacillus take very different degrees of stain, and this it is that has given rise to the idea that the organism is a micrococcus arranged in lines or chains. A considerable number of experiments were made by Dr. Shongolowicz on the eyes of animals, but in only two cases did he succeed in producing an affection that closely resembled the granular ophthalmia in the human subject.

THE SALE OF OPIATES.—The *Pharmaceutical Era* says: A paper upon this topic presented the subject in the very plainest of words and forcible language to the members of the State Association assembled at Saginaw. The writer severely took to task that very numerous class of druggists who were found perfectly willing to cater to the trades of those infortunates who have become addicted to the habit of opiate taking. He related how certain ones in order to keep this trade had no hesitancy in reducing the price of morphine, opium, chloral, etc., so as to attract these customers to their stores. Druggists of this class were denounced in no measured terms. The writer took the ground that even though this people must have these enslaving drugs, yet the pharmacist should do all in his power to discourage the habit, and more than that, by putting restrictive prices on the goods show he has no desire to cater to this class of trade.

If opium were reduced one-half in value, the druggist should not therefore give twice as much morphine or laudanum for the same money as heretofore. The remarks of the speaker were highly approved of, his hearers agreeing that this evil had grown to great proportions, until its regulation and proper conduct is a matter that should enlist the serious attention of the public and its law-makers.

IT is proposed to amalgamate all the medical societies in Russia into one general association, which will be divided, for scientific purposes, into sections of medicine, surgery, obstetrics, etc., but will be managed by a central committee.

TOPICS OF THE WEEK.

MEDICAL ARCHÆOLOGY.

The Greek correspondent of the *Athenæum* (Spyr. P. Lambros), in a letter to that journal, has given an account of the task undertaken by Dr. G. Kostomiris, who, in 1887, published an interesting treatise on ophthalmology and otology among the ancient Greeks. Dr. Kostomiris has since pursued his researches at the Bibliothèque Nationale in Paris, and discovered there a large number of unpublished manuscripts of medical works. In a paper read before the Academy of Medicine he enumerated the works of twenty-four physicians, and also several anonymous treatises, which he considers deserve publication, not only on account of their historical and philological importance, but also on account of their medical value. This last statement may be due to the learned ophthalmologist's enthusiasm, but the interest of the subject is so considerable that it is pleasant to learn that the Medical Faculty of Athens and the Senate of the University have taken up the project to print the pseudo-Hippocratean treatises which have not yet been published, as well as treatises of Kratenas, Galen and Promotus. Funds have been provided from public sources and Dr. Kostomiris is about to devote a year to preliminary work. His first step has been to proceed to Mount Athos to study the manuscripts preserved there. *Brit. Med. Jour.*

DECREASE OF THE INDIAN TRIBES.

That the race of red men in North America is rapidly dying out, and that the policy of the Federal Government, in assigning to them reservations of territory for their exclusive use, has been powerless to arrest this decay, are facts familiar to all. We are, perhaps, too much inclined to regard this decadence as a mysterious and inexplicable blight—as due, not to normal causes, but to the mere contact of an inferior with a superior race. This sentimental view involves at least two obvious errors: first, the assumption that all colored races tend to die out before the advance of the victorious white man; and, secondly, that the causes of the decay of the red man are inexplicable, whereas they are only too obvious. As regards the former point, it must be remembered that some colored races—the negro, for example, and the Malay—hold their own when brought into contact with the whites. The negroes in North America have increased more rapidly in numbers during the present century than their white neighbors, and the certainty that this superior fecundity of the negro will continue constitutes one of the gravest problems that confront American statesmen. The Malay and the Chinaman, not to mention other examples, are quite capable, if allowed fair play, of prospering and multiplying amidst a white population. Hence, the doctrine, so often assumed as self-evident, that the colored races die out as it were by a natural law when brought into contact with the whites, is entirely fallacious. This doctrine has probably obtained currency owing to the fact that in certain familiar cases it seems to find an obvious illustration. The last native has disappeared from the island of Tasmania. The native Australian is to-day but rarely seen in Victoria, South Australia or New South Wales, and is becoming rarer even in Queensland and Western Australia. The Maori of New Zealand and the Sandwich Islander are both going steadily to the wall before the Anglo-Saxon. These instances, which are sufficiently impressive, strike the imagination, and readily create the idea that the colored man has no chance in the struggle for existence with the white. We have seen, however, that there are several notable exceptions to this apparent law, and we are therefore driven to seek elsewhere than in a fallacious generalization for an explanation of the decadence of the Red Indian of America.

The explanation is evidently to be sought in the changed habits and mode of life which contact with civilization has involved to the red man. In former days he lived an out-of-door life, he was constantly on horseback, he pursued the customs of a nomad, he dressed in skins, and lived chiefly on flesh meat. Now he lives for the most part in close cabins, he dresses in shoddy blankets and calico, and he drinks tea, coffee and rum. Hence he falls a ready victim to scrofula and phthisis. How far the loss of the free nomad life and of the wild joy of battle may have still further depressed the mental condition of the Red Indian may be a question. He comes of a race for whom war has been for generations the only honorable employment, and he seems unable to reconcile himself to a life of toil and industry.

The moral of these facts for us is not that we should all turn nomads in order to avoid phthisis and scrofula, but that civilization is a more or less unnatural process to which a wild race cannot be suddenly subjected without great peril, and that even for long-civilized peoples the civilizing influences have certain dangers which are closely associated with unhealthy dwellings and unwholesome food. The great law of adaptation to our environment, obedience to which is the necessary condition of survival, finds in these matters one of its most striking illustrations. If the red men had been a numerous and powerful people, and if the civilizing process could have been very gradually applied, it is more than probable that in the course of a score or two of generations some degree of adaptability to new conditions might have been developed. But the Indians were comparatively few in number, wholly without association or union, and they were suddenly exposed to the tremendous impact of a high civilization. Hence they have melted away like snow in spring time. The negro has been saved from a similar fate by his extraordinary natural fecundity, his ready adaptability to a settled mode of life, and his capacity for labor.

Of the special causes that have wrought havoc among the red men, the most potent have been phthisis, scrofula, syphilis and drink. To determine the relative influence of these destructive forces would be difficult, inasmuch as in some cases one and in other cases another has probably been the most active. That a change from an active out-of-door life to an in-door life of confinement and inactivity is a most fertile source of

phthisis is a fact of which it would be impossible to overrate the importance. This fact is further emphasized by the law that phthisis increases in virulence in direct proportion to the density of the population, and especially to the proportion of the population engaged in occupations involving prolonged confinement in vitiated air. It is further illustrated by the fact that all successful forms of the climatic treatment of phthisis have this feature in common—viz., that they give the invalid the opportunity of breathing pure air.

The red man seems to have a peculiar proclivity to the evil influences of alcohol. When the opportunity presents itself, he gives way, almost without exception, to wild excess, and suffers a terrible penalty. The same tragic tale is just now being repeated amidst some of the African tribes, to whom the introduction of rum seems likely to render nul all the blessings of civilization. How far tea and coffee injuriously affect uncivilized races, to whom their use has been previously unknown, is a point of great interest upon which we have little evidence. It would be a great fallacy to argue that, because certain evil results attend the use of coffee, tea, or alcohol among savage nations unaccustomed to their use, the same results must accrue to civilized peoples. It is obvious that custom and adaptability count for so much that such a crude generalization is inexcusable.—Editorial, *Lancet*.

PERSONAL RELATIONS AND RESPONSIBILITIES.

The *Canada Health Journal* for September has an article on this subject worth consideration. In addressing man, in regard to his neighbor, it says:

"Mind your own business" are words conveying most excellent advice in nearly all circumstances, but what one's own business always really is, has never been, it appears, very clearly defined, and there is one condition or relation in which one is not only justified in prying a little into one's neighbor's affairs, but in which this becomes an indispensable duty. No matter how healthy and vigorous you may habitually be, "dear reader," or how judicious, sensible and careful you may be in relation to your own individual health, and that, too, of your family, a careless, selfish or ignorant neighbor, if not closely looked after, may inflict you with a most malignant or fatal disease. You may even suspect such a neighbor, and avoid him and strive to keep your children away from him and from his, but unknowingly you may seat yourself on the cushioned car or cab seat which he has just infected by sitting on it for a time, or you may stand beside him in the shop or market place long enough for him to infect you; he may, all unintentionally, infect your well, or you may buy from some such one infected food. Your children, in spite of your utmost care, may chance to play or be long enough in contact with his to become infected with a fatal type of scarlet fever or diphtheria. You must, therefore, to a certain extent or in certain circumstances, mind your neighbor's business, or you may suffer terribly for neglecting to do so. In other words, what should be your neighbor's business becomes in these circumstances your own business.

In well organized communities special health officers, called inspectors, are employed to look after the neighbors. The position or function of an inspector, is an exceedingly important one, therefore, and a man of special fitness, special ability with tact and good common sense, must be selected for it. Without a first-class suitable man, many causes and sources of disease and its spread may be overlooked. For safety, every home in the community in which you live, at least, however humble it may be, must be in as good a sanitary condition as your own; hygienically all must be as perfect as possible. To get the best men for such positions the pay must be liberal. Often municipal authorities do not pay such officials well, because the people,—their supporters, will not sustain them in so doing. Wise supporters, or electors, will take care that the health officials, the most important officials of the municipality, whether city or town, or only village or township, are so paid that they may have the "heart" to do their work well—to be "up betimes" and "vigilant in their calling." And indeed, at best, every man should, himself, take heed, a little, judiciously, to his neighbor's sanitary condition, even before the sense of smell is affected, and so aid the health officers, remembering that "eternal vigilance" is, too, the price of cleanliness and health.

HOSPITAL WORK AT PEKIN.

The London Missionary Society's report of the condition of this station shows that the accommodation has become quite insufficient for the number of in-patients, so that the treatment of the out-patients has become the main work of the institution. Last year the number amounted to 19,243. A great change is observed in the attitude of the poorer Chinese towards amputations, and several of these operations have been performed successfully. One case is recorded in which a cook intentionally chopped off four of his fingers for a curious reason. He was quarreling with another man, and to impress the latter with his courage and indifference to pain he deliberately mutilated himself. In another case a youth removed a portion of the calf of his leg in order to make soup for his sick father with the flesh. The father died, and the son became a patient at the hospital. One hundred and fifty-nine patients were treated for opium smoking. Attempts have been made to get rid of the habit on account of the waste of time it involves, or by reason of the impecuniosity of the victims. Several have conquered it on account of its injurious results on their bodily health. Six are reported to have been cured by home influence, and three by arguments advanced by Christian teachers. *Lancet*.

THE DURATION OF LIFE IN THE MEDICAL PROFESSION.

It is calculated, on the basis of statistics, that the average duration of the lives of medical men in Prussia, from the end of the thirtieth year onwards, is somewhat below that of the total male population of the country, though the latter includes a large number of decrepit and diseased persons, such as the nature of the medical profession excludes.

PRACTICAL NOTES.

RHEUMATISM AND GOUT.

Dr. Satterlee has written a book on this subject, and tells us that he has himself suffered from the ailments which he describes. This renders his remarks of special value, as it is not often anything is written under such circumstances.

In acute rheumatism he lays much stress upon the use of cholagogues, giving the following formula:

℞. Euonymin, gr. ¼.
Podophyllin, gr. ⅛.
Aloin, gr. ⅛.
M. S.—One tablet twice daily as required.

He objects to the salicylates on the grounds which show a very exceptional experience, or a no less exceptional lack of skill in their use on his part. His preference is for the alkalies, which he gives in the following forms:

℞. Potassii bicarb, ʒ ij ℈ ij.
Aquæ destillat. ℥ viij.
M. S.—One fluid once to half an ounce of fresh lemon juice, to be taken while effervescing.

℞. Lithii benzoat. ʒ ss.
Sodii bromid.
Potassii carbonat. pura. ää ʒ ij.
Potassii acetat. ʒ iss.
Sodii phosphat. ʒ ss.
Syr. zingiberis
Aq. menth. pip. ää ℥ vj.
M. et Sig.—ʒ ij to ℥ ss in half a glass of water, every four or six hours, after food.

He states that this mixture of three bases combined with five acids is effectual and agrees well with the stomach.

Dr. F. Leroy Satterlee recommends the following topical application in cases of gout:

℞. Ol. gaultheriæ,
Ol. olivæ,
Liniment. saponis,
Tinct. aconiti,
Tinct. opii. ää ʒ ij
M. ft. liniment.
Sig.: Apply to part.

It can be applied freely by the gentlest friction to the inflamed site, protecting afterwards with a generous covering of cotton batting.—*Times and Register.*

SALOL COLLODION.

It is recommended in the *Repertoire de Pharmacie* for July 10, 1890, to dissolve 4 parts of salol in 4 parts of ether, and then add to 30 parts of collodion, and it is stated that the application of the salol collodion to the affected parts in acute rheumatism will be followed by rapid relief of pain.—*Thera. Gazette.*

ANÆSTHESIA IN MINOR SURGERY.

In such cases as opening a bone felon, scraping a small fistula in the gums, removal of epithelioma in the face, or in fact, any small operation requiring a local anæsthetic lasting from two to six minutes, Dobish (*Rundschau*, 1890), recommends the use of the following solution in a Richardson spray:

℞. Chloroformi, ʒ iiss.
Æther, sulphuric, ʒ iv.
Menthol, gr. xv.
M. Sig.: As a spray.

PILL FOR THE TREATMENT OF CHRONIC CONSTIPATION.

In the treatment of chronic constipation Nothnagel advises the use of the following when a laxative is necessary:

℞— Podophylin, 4½ grains.
Extract of aloe, 45 grains.
Extract of rhubarb, 45 grains.
Extract of taraxacum, a sufficient quantity.

Mix and divide into forty pills, of which one, two, or three may be taken at bedtime.—*Therapeutische Monatshefte.*

THREATENED ECLAMPSIA.

Prof. Parvin directs the following in cases of threatened eclampsia in pregnancy: A purgative pill:

℞— Extract aloes.
Extract colocynth, ää gr. ¼. M.

To be given frequently enough to keep the bowels freely open; also a hot bath each day, with a glass of hot water to be drank while in the bath. After the hot bath, the patient must be put to bed, and wrapped in blankets. Milk diet.—*Coll. and Clin. Record.*

TO MASK THE ODOR OF ICHTHYOL.

The *Pharmaceutische Zeitung* recommends the addition of 10 per cent. of oil of citronella. The addition is said to be harmless in any case, while in rheumatism it is claimed that it will be positively beneficial. In India the oil is used to a considerable extent as a remedy in rheumatism, and, it is declared, with very good results.

PILLS FOR DYSENTERY.

Boudin, in *L'Union Médicale*, September 2, 1890, recommends the following pills for the treatment of dysentery:

℞— Ipecacuanha, 5 grains.
Calomel, 1½ grains.
Extract of opium, 1 grain.

To be made into three pills and one given every hour, and used either for dysentery or diarrhœa dependent upon exposure to heat.

CARBOLATED OIL FOR SCABIES.

Carbolated oil (1 to 15) is strongly recommended by Tressilian (*Brit. Med. Journ.*), as preferable, in the treatment of scabies, to any preparation of sulphur.

SOCIETY PROCEEDINGS.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Sixteenth Annual Meeting, held at Louisville, Ky., October 8, 9 and 10, 1890.

First Day.

The Association was called to order by Dr. J. N. Bloom, Chairman of the Committee of Arrangements, who welcomed the members to Louisville, and introduced Dr. Jos. M. Matthews, the President. He made a few introductory remarks but omitted the usual opening address, believing that the time would be better occupied in the scientific work of the session.

The first paper, by Dr. Frank Woodbury, of Philadelphia, dealt with the complicated question of

INFECTIOUS DYSPEPSIA AND ITS TREATMENT.

The author restricted the subject to gastric dyspepsia and said he believed that the majority of cases of this sort were due to either primary or secondary infection of the stomach. Microörganisms were normally present in the stomach, and usually did no harm, but when there was dilatation or a diseased condition of the mucous membrane, fermentation was set up, and then we were called upon to treat such cases antiseptically. This was best accomplished by washing out the stomach. For this purpose he exhibited a simple but ingeniously devised apparatus.

Dr. John H. Hollister, of Chicago, presented a few thoughts upon

HELP AND HINDRANCE TO MEDICAL PROGRESS.

In this paper he briefly reviewed the progress of medicine up to the present, showing how successive advances had been made. He indicated what direction progress would take in the future, especially calling attention to the vast unexplored fields of nervous pathology, and the chaotic condition of our therapeutics. He closed with a brief reference to higher medical education and medical journalism and their relation to progress in medicine.

Dr. Geo. Hulbert, of St. Louis, presented a paper on

MECHANICAL OBSTRUCTION IN DISEASES OF THE UTERUS.

He did not believe that stenosis was a dominant factor, and rejected *in toto* the prevalent theories of dysmenorrhœa. Out of over 10,000 cases examined *intra vitam* and 300 examined post-mortem in no single case was he able to demonstrate an obstruction that would hinder the ready flow of blood, save in the cases of pure atresia. By means of drawings made from post-mortem specimens he demonstrated that stenosis could not come from a simple bending because of the atrophy that took place at the angle. It would not do in these cases to draw conclusions from forcibly bending a normal uterus or a rubber tube—the conditions were quite different. He regarded the pain in the so-called mechanical dysmenorrhœa to changes in the nervous and vascular supply of the uterus, caused by general conditions. He was confirmed in these views by the fact that an internal os with an opening of but 1-32 inch could discharge 120 times the normal amount of menstrual fluid; also, by the fact that 50 per centum of cases presenting all the physical conditions of stenosis—impermeability to the sound, pin-hole os, etc., never had any pain.

Dr. R. Stansbury Sutton, of Pittsburg, presented specimens and remarks upon

THE SURGICAL TREATMENT OF UTERINE FIBROIDS.

He strongly recommended the use of the dam and persulphate of iron in the extraperitoneal method of treating the pedicle.

Dr. L. S. McMurtry, of Danville, Ky., condemned in unmeasured terms the use of electricity, particularly in the soft variety of fibroid. The menopause also, he believed, had but a slight effect in this class of cases.

Dr. C. A. L. Reed, of Cincinnati, mentioned a case of soft myoma that developed in a woman 57 years of age, twelve years after the advent of the menopause.

Dr. Sutton in closing the discussion said that if the operation of supravaginal hysterectomy was persisted in, he thought it would eventually become as safe as the operation for ovariotomy.

Dr. I. N. Love, of St. Louis, read a paper on

COFFEE, ITS USE AND ABUSE.

He regarded coffee as an antiseptic, said that it was a stimulant, and aided the secretions. A cup of black coffee was in most cases a better thing to give after an injury, than the dose of alcohol commonly administered. In excessive doses it causes insomnia, indigestion, and irregular heart's action.

Dr. X. C. Scott, of Cleveland, O., read a paper on

THE TREATMENT OF FRACTURES OF THE FOREARM BY EXTENSION, COUNTER-EXTENSION, AND FORCED SUPINATION,

which he said was adapted to all fractures of the forearm excepting those of the olecranon process. He exhibited a specially contrived splint adapted to the method. He condemned the pistol-shaped splint, and said that by pressure alone it was impossible to separate the bones of the forearm.

Dr. Wm. Porter, of St. Louis, presented a paper on

THE SELF-LIMITATION OF PHTHISIS.

(See page 568.)

DR. A. B. THRASHER, of Cincinnati, O., read a paper on

THE RELATION OF COUGH TO INTRA-NASAL DISEASE,

and mentioned several cases in which cough was dependent upon nasal reflexes. In one of these a violent spasm of coughing could be produced by touching a sensitive area, on the inferior turbinated body.

In the evening DR. JOHN A. WYETH delivered a general address upon

THE MEDICAL STUDENT.

After a humorous introduction, he gave the student of medicine some sound advice regarding his studies and the demands made upon the modern practitioner. The address was exceptionally brilliant, and well received by the large audience present.

SECOND DAY.

DR. JOSEPH RANSOHOFF, of Cincinnati, read a paper on

CHRONIC DISEASE OF THE JOINTS.

The author limited his remarks to diseases of the bones and joints of the tarsus. He mentioned curetting only to condemn it. The mortality was considerable and the chances of obtaining a useful foot were remote. Amputation should be resorted to oftener and earlier in these cases.

DR. H. C. DALTON, of St. Louis, Mo., reported six cases of

GUNSHOT INJURY OF THE ABDOMINAL CAVITY,

in which the viscera were injured, with five recoveries and one death. He recommended immediate operation in all penetrating wounds of the abdomen. He condemned Senn's hydrogen gas test, though he thought it might have been useful in one of his cases. One of the cases was a stab wound of the liver necessitating a resection of the seventh rib and the slitting the diaphragm. Up to date the writer had performed laparotomy for penetrating wounds of the abdomen twenty-three times, with twenty recoveries and three deaths.

DR. M. T. SCOTT reported *A Successful Case of Operation for Gunshot Injury of Intestine.*

DR. J. B. MURDOCK, of Pittsburg, read a paper entitled

TORSION OF ARTERIES AS A MEANS FOR THE ARREST OF HÆMORRHAGE.

He relies almost wholly upon torsion for the arrest of hæmorrhage, having used it in arteries as large as the axillary, femoral and popliteal. He claimed for torsion great advantages over the ligature, both on score of sepsis and freedom from secondary hæmorrhage. It was a method quite as safe as the ligature.

DR. G. FRANK LYDSTON exhibited a specimen of what he called *Fungating Chancre*, also a specimen of *Tubercular Testis* and one of *Paget's Disease*. Also a series of skulls and drawings exhibiting some modern studies in criminal anthropology.

DR. C. H. HUGHES, of St. Louis, read a paper on

THE PSYCHIC SEQUENCES OF ENTAILED AND CHRONICALLY ACQUIRED ALCOHOLISM.

The writer especially referred to the degenerations and changes in the ganglionic nervous system. This was one of the reasons why the mild attack of pneumonia carries off the alcoholic. Alcohol stood, he thought, in an intimate relation to the etiology of Bright's disease. He regarded inebriety, whether in its chronic or paroxysmal forms, as a disease.

DR. C. S. BOND read a paper entitled

UREA AND SEROUS MEMBRANES.

He claimed that the serous membranes were frequently early involved in those conditions of inadequate kidney attended by a lessening of the quantity of urea excreted. The author supported his conclusions by detailing several cases in which there was an inflammation of some serous membrane associated with a marked diminution in the amount of urea.

DR. ARCH. DIXON reported a case of

INGUINAL COLOTOMY FOR INTESTINAL OBSTRUCTION.

He prefers the inguinal colotomy to the lumbar operation, for various reasons—principally that it is more convenient, is easier carried out, and the wound is less extensive.

DR. EMORY LANPHEAR, of Kansas City, presented a paper on

THE SURGICAL RELATIONS OF HYPNOTISM.

He was satisfied that in hypnotism we had a means of producing surgical anæsthesia. He finds that only one person out of ten cannot be hypnotized. It may be produced in any one who can fix their attention upon one subject for a sufficient length of time. He preferred the method of holding a bright object just above the eyes for a time, when with soothing words, the patient would fall into the hypnotic state. Several *séances* were usually necessary. He considered that hypnotism was simply an abeyance of the will and reasoning powers while the emotions and perceptions were in a state of full activity.

CERTAINTY IN THE DIAGNOSIS OF TUBERCULOSIS.

DR. THEODORE POTTER read a paper on the above subject. The author said that he believed tuberculosis to be an acute, local infectious disorder, void of the slightest tendency toward self-limitation. The most essential thing in its treatment was to make an early diagnosis, and this was best done by repeated and thorough

examinations of the sputum for the tubercle bacilli.

Dr. B. Merrill Ricketts, of Cincinnati, considered herniotomy, which he classed among the least fatal of all of the major operations. He laid especial stress upon the necessity of early operation, if there was any doubt of the nature of the tumor an operation should at once be done, as in this way only could a certain diagnosis be made. In one of his cases he had cut down upon a supposed sac of a femoral hernia and had turned out an enlarged lymphatic gland. He thought there was but one operation to do in these cases,—to at once cut down to the internal ring and unite it by sutures. Every herniotomy he believed should be followed by an effort to obtain a radical cure.

Dr. Harold N. Moyer, of Chicago, presented a paper on

THE HYPODERMIC USE OF ARSENIC.

He recognized the irritant properties of Fowler's solution when injected beneath the skin, and he now used the arseniate of sodium, a salt of stable chemical composition, feebly alkaline and easily absorbed. He found that arsenic was less irritating when given by the hypodermatic method. Out of 127 injections he had never noted inflammation, and nothing approaching an abscess. He thought that arsenic used in this way would prove very useful in chronic skin diseases, nervous disorders, and malarial conditions.

THIRD DAY.

Dr. Edwin Picketts, of Cincinnati, made a few remarks upon the difficulty of diagnosticating a twisted ovarian pedicle complicating a case of uterine myoma. He described a case of this kind in which sepsis preceded operation, death following on the sixth day.

Dr. David Barrow described

THREE CASES OF INTESTINAL OBSTRUCTION.

He advocated early laparotomy in those cases that resisted medical treatment; opium should be avoided as it masked the symptoms. In no case should a patient be allowed to pass beyond the point where an operation would be safe.

In the discussion Dr. J. A. Wyeth approved of the points brought out by the writer. He would, however, emphasize one point, when the obstruction is complete, and the symptoms urgent so that there is no time to complete an operation, he would advocate opening the bowel and so relieving some of the more urgent symptoms. He detailed a case in which this simple procedure saved a life. In answer to a question, he said it was still a mooted question whether the open method should be followed or implantation. It was largely to be decided by the condition of the patient.

Dr. R. R. Kime described a

CASE OF EXTRA-UTERINE PREGNANCY

of four years and three months standing. The sac finally ruptured spontaneously, discharging a portion of the contents by the vagina. Later the discharges became foul and the patient showed signs of septicæmia. The uterus was dilated, the sac reached through that organ, and the greater portion of the fœtus removed. Fæces were discharged through the vagina, but ultimately the sac closed and the patient made a good recovery. The writer thought the condition was one of interstitial pregnancy.

Dr. Seaton Norman, in a short paper, advanced the views that organic stricture of the urethra of recent origin is best conducted by gradual dilatation. Strictures of long standing should be treated by internal urethrotomy, with antiseptic precautions, and especial effort should be made to keep the incisions aseptic for several days. These means favored early healing, and prevented much inflammation, a potent factor in causing subsequent cicatricial contraction.

In a *résumé* of the various operations upon the hypertrophied prostate, Dr. W. T. Belfield had collected 133 cases, for details of which see editorial notes, page 582.

Dr. H. O. Walker, of Detroit, read a paper on

PERINEAL CYSTOTOMY VERSUS SUPRA-PUBIC CYSTOTOMY.

The writer detailed five operations of supra-pubic cystotomy, in his own practice, with four deaths. He detailed many of the unpleasant consequences of the operation, such as excoriations from dribbling urine, and septic infection. He did not regard normal urine as the ideal antiseptic, a position claimed for it by some surgeons. In looking over the literature at his command, he had found between three and four hundred cases of supra-pubic cystotomy with an average mortality of thirty per centum. A few operators have had a series of cases ranging from three to ten, without a death, the most remarkable of these being that of Hunter McGuire, who had only one death in twenty-one cases. In the perineal operation, out of thousands of cases, the mortality ranges from 5 to 9 per centum. He therefore concludes that perineal cystotomy is safer, simpler, has more rapid results, and is adapted to more cases than the supra-pubic operation.

Dr. L. S. McMurtry presented a few practical points in *Midwifery*. He thoroughly believed in the antiseptic method; puerperal fever was not a fever at all, but simply sepsis. Especial stress was laid upon the necessity of examining into the surroundings of the lying-in women, the position of the water-closet, condition of the bedding, nurse, syringe, and everything that came in contact with the patient.

Dr. T. B. Greenley read a paper on the *Ad-*

vantages of Attending Medical Societies and Reading Medical Journals. He cited some amusing incidents in the careers of men who insisted upon doing neither of these things.

DR. J. V. PREWETT presented a paper strongly advocating internal urethrotomy, which he claimed had passed from one of the graver operations, because of antisepsis, to one of very little danger.

Was it Relapsing Fever? formed the title of a paper by DR. A. D. BARR, in which he described a case in which an irregularly recurring temperature presented itself. He thought he had excluded typhoid and malarial conditions, upon which he asks the question contained in the title of the paper.

DR. FRANCIS DOWLING presented a paper

ON THE PREVENTION OF MYOPIA.

Myopia begins usually about the tenth year. It was mostly to be attributed to over-use of the eyes. The condition was hereditary—not directly, but the tendency to it. Deformity and malformations, as well as choriditis, played a part. The inflammatory exudates stretched the membranes, and so lengthened the long diameter. All children should not study the same number of hours; myopes should have fewer hours and more light. If the general health became impaired, all study should be suspended. Latin letters and larger type should be used, and in myopes reading should be frequently interrupted and the eyes closed or fixed upon a far point. Glasses do not check the myopia, and should not be worn before the fifteenth year. Paracentesis of the cornea is useful in marked cases, and frequently prevents detachment of the retina.

A Plea for the More Extensive Use of Spectacles formed the topic of a paper presented by DR. FRANK T. SMITH. He found a large number of cases in which marked impairment of vision was not noticed. The various reflex conditions formed an important field for the use of glasses. In answer to a question, he said that myopia was never cured by the use of glasses.

DOMESTIC CORRESPONDENCE.

EDITORIAL CORRESPONDENCE.

Annual Meeting of the American Rhinological Association.

FIRST DAY.

The Eighth Annual Meeting of this Association convened at the Gault House in Louisville, October 6, with a full representation of the fellows of the Society. At nine o'clock the records of the previous meeting were presented and approved and other preliminary business considered. At ten o'clock the roll was called and the regular meeting was formally opened with an address by the President, Dr. Arthur G. Hobbs, of Atlanta, Ga.

The afternoon session of the first day was occupied in an informal consideration of its purposes, interests and the necessary modifications of its rules to best insure the greatest success of the Association. The leading rhinologists of the country were in attendance, and the discussions controlled the entire session.

SECOND DAY.

The reading of papers being in order the first one was presented by Dr. A. B. Thrasher, of Cincinnati, O., upon the subject of "Nasal Reflex." The paper was an able résumé of the literature upon that subject and a thorough discussion of the same. It elicited an extended discussion which was participated in by a large number of the fellows.

The next paper was one upon "Nasal Cauteries," prepared by Dr. E. R. Lewis, of Indianapolis. The doctor is a strong advocate of its use, but emphatic in his demand as to careful discrimination in its use. He based his views upon the personal observation of some two thousand cases. In the discussion of this paper Dr. Thrasher was disposed to be sanguine, as to the use of the cautery, though according to it a measure of merit, but advocated more fully the use of other local remedies.

Dr. Stuckey, of Louisville, read a paper upon "Tonsilar Hypertrophy," referring to their influence upon nasal and aural inflammations and their treatment.

Dr. E. R. Lewis, of Indianapolis, read a paper on "Nasal Cauteries," strongly advocating the use of the storage battery, basing his conclusions upon personal observation of some two thousand cases, and dwelt very fully upon the pathological conditions in which cauterization was indicated. Dr. Thrasher was less sanguine as to the beneficial results to be obtained from the cautery and gave his own views as to the value of other remedies. Nearly all the members participated in the discussion.

The afternoon session of the second day was opened with a paper by Dr. John North, of Toledo, O., upon "Nasal Hypertrophys," in which the neurotic conditions and pathologic conditions of thickened membranes were considered and the whole subject of cauterization and of topical applications underwent review.

Dr. T. C. McGahn, of Chattanooga, Tenn., read an interesting paper entitled "Polipii and Other Nasal Growths." This paper was fully discussed. The administration of morphine by the nostril was the subject of a brief article by Dr. C. H. von Klein, of Dayton, O. Other papers were presented and discussed: one by Dr. J. G. Carpenter, of Stanford, Ky., upon "Nasal and Pharyngeal

Manifestations of Syphilis—Results and Treatment."

"Hygiene of the Upper Respiratory Organs" was discussed by Dr. L. B. Gillette, of Omaha, Neb. "Hay Asthma" was again discussed, the opening paper being by Dr. A. De Vilbiss, of Toledo, O. Dr. Emmett Walsh, of Grand Rapids, Mich., presented a paper entitled "The Relation of Naso-Pharyngeal Diseases to Catarrh of the Middle Ear."

Papers by new members were omitted the time having been fully occupied by those standing first upon the programme. Members of the profession were impressed with their value, and in the discussions it was evident that men who were specialists in this class of diseases were specially fitted for their most successful treatment. The specialist here, as elsewhere demonstrates his right to be.

Indianapolis was designated as the place for the meeting in 1891. J. H. H.

MISCELLANY.

LETTERS RECEIVED.

Wm. R. Warner & Co., Philadelphia; Dr. J. O. Roe, Rochester, N. Y.; Dr. T. Wertz, Evansville, Ind.; E B. Ryan, Bay City, Mich.; Dr. W. L. Beebe, St. Cloud, Minn.; J. W. Harrison, Jersey City, N. J.; Dr. T. E. Murrell, Little Rock, Ark.; Dr. G. E. de Schweinitz, Philadelphia; Antikammia Chemical Co., St. Louis; W. H. Moore, Brockport, N. Y.; Dr. H. R. Purdy, New York; Subscription News Agency, Chicago; Dr. Wm. B. Atkinson, Philadelphia; N. Y. Post-Graduate Medical School, New York; Dr. N. Senn, Milwaukee, Wis.; Dr. S. P. Deahofe, Potsdam, O.; Dr. A. Blitz, Indianapolis, Ind.; S. S. White Dental Mfg. Co., Philadelphia; American and Continental Sanitas Co.; J. Movius & Son, New York; McLean & Co., Atlantic, Ia.; James F. Madden, New York; Dr. H. P. Millard, Minneapolis, Minn.; Dr. Walter Wyman, U. S. M.-H. S., Washington.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from October 4, 1890, to October 10, 1890.

Lieut.-Col. Chas. C. Byrne, Surgeon, is relieved from duty as attending Surgeon at the Soldiers' home, near this city, and will report in person to the commanding officer, Ft. Sam Houston, Tex., for duty at that station. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. Jas. A. Finley, Asst. Surgeon, is relieved from duty at Ft. Totten, N. Dak., and will report in person to the commanding officer, Jefferson Bks., Mo., for duty at that station, relieving Capt. Wm. D. Crosby, Asst. Surgeon. Capt. Crosby, on being relieved by Capt. Finley, willl report in person to the commanding officer, Ft. Pembina, N. Dak., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Lieut.-Col. Joseph C. Baily, Asst. Medical Purveyor, Medical Director of the Department, is granted leave of absence for one month. Par. 3, S. O. 86, Dept. of Texas, October 3, 1890.

First Lieut. Leonard Wood, Asst. Surgeon, leave of absence granted in S. O. 74, August 3, 1890, Dept. of California, is extended one month. By direction of the Secretary of War. Par. 7, S. O. 232, A. G. O., Washington, October 3, 1890.

Major Henry M. Cronkhite, Surgeon, is relieved from duty at Ft. Lewis, Col., and will report in person to the commanding officer, Ft. Trumbull, Conn., for duty at that station, relieving Capt. Robert J. Gibson, Asst. Surgeon. Capt. Gibson, on being relieved from duty by Maj. Cronkhite, will report in person to the commanding officer, Ft. Sam Houston, Tex., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Major William H. Gardner, Surgeon, is relieved from duty at Washington Bks., D. C., to take effect on the arrival of Major Joseph K. Corson, Surgeon, and will report in person to the commanding officer, Angel Island, Cal., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. Wm. C. Borden, Asst. Surgeon, is relieved from duty at Ft. Sam Houston, Texas, upon the arrival of Lt.-Col. C. C. Byrne, Surgeon, and will report in person to the commanding officer, Ft. Davis, Texas, for duty at that station, relieving Capt. Peter R. Egan, Asst. Surgeon. Capt. Egan, on being relieved by Capt. Borden, will report in person to the commanding officer, Ft. Warren. Mass., for duty at that station, relieving Capt. Geo. McCreery, Asst. Surgeon. Capt. McCreery, on being relieved by Capt. Egan, will report in person to the commanding officer, Ft. Clark, Tex., for duty at that station, relieving Capt. Chas. M. Gandy, Asst. Surgeon. Capt. Gandy, on being relieved by Capt. McCreery, will report in person to the commanding officer, Ft. Shaw, Mont., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Major Curtis E. Munn, Surgeon, is relieved from duty at Angel Island, Cal., and will report in person to the commanding officer, Ft. Monroe, Va., for duty at that station, relieving Major John Brooke, Surgeon. Major Brooke, on being relieved by Maj. Munn, will report in person to the commanding officer, Ft. Leavenworth, Kan., for duty at that station, relieving Major Alfred A. Woodhull, Surgeon. Maj. Woodhull, on being relieved by Maj. Brooke, will report in person to the commanding officer, Ft. Sherman, Idaho, for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

By direction of the Secretary of War, the following changes in the stations and duties of officers of the Medical Department are ordered:

Major Geo. M. Sternberg, Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Baltimore, Md., and as a member of the Army Medical Board, appointed to meet in New York City, and will repair to San Francisco, Cal., and take charge of the Medical Purveying Depot at that place, as Acting Asst. Medical Purveyor, relieving Col. B. J. D. Irwin, Surgeon. Col. Irwin, on being thus relieved, will report in person to the commanding General, Dept. of the Columbia, for assignment to duty as Medical Director of that Department, and as Post Surgeon, Vancouver Bks., Wash., relieving Major William E. Waters, Surgeon, now Post Surgeon, and temporarily in charge of the Medical Director's Office. Major Waters, on being thus relieved, will report in person to the commanding officer, Ft. Custer, Mont., for duty at that station. Par. 8, S. O. 232, A. G. O., October 3, 1890.

Major Van Buren Hubbard, Surgeon, is relieved from duty at Columbus Bks., O., and will report in person to the commanding officer, Ft. Spokane, Wash., for duty at that station, relieving Capt. Henry S. Turrill, Asst. Surgeon. Capt. Turrill, on being relieved by Maj. Hubbard, will report in person to the commanding officer, Madison Bks., N. Y., for duty at that sta-

tion, relieving Major John D. Hall, Surgeon. Major Hall, on being relieved by Capt. Turrill, will report in person to the commanding officer, Ft. Canby, Wash., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

First Lieut. Allen M. Smith, Asst. Surgeon, is relieved from duty at Ft. Snelling, Minn., and will report in person to the commanding officer, Ft. Assiniboine, Mont., for duty at that station, relieving Asst. Surgeon Paul Shillock. Lieut. Shillock, upon being relieved, will report in person to the commanding officer, Ft. Custer, Mont., for duty at that station, relieving Capt. Wm. R. Hall, Asst. Surgeon. Capt. Hall, upon being relieved by Lieut. Shillock, will report in person to the commanding officer, Ft. Schuyler, N. Y., for duty at that station, relieving Capt. Norton Strong, Asst. Surgeon. Capt. Strong, on being relieved by Capt. Hall, will report in person to the commanding officer at Ft. Meade, S. Dak., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. Rudolph G. Ebert, Asst. Surgeon, is relieved from duty at Angel Island, Cal., to take effect upon the arrival at that post of Major Wm. H. Gardner, Surgeon, and will then proceed to Vancouver Bks., Wash., and report for duty to the commmanding officer of that post. By direction of the Secretary of War. Par. 15, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. Robert B. Benham, Asst. Surgeon, will proceed from Ft. Hamilton, N. Y., to Mount Vernon Bks., Ala., and report in person to the commanding officer of that post for temporary duty, relieving Capt. John J. Cochran, Asst. Surgeon, who will return to his proper station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. C. N. Berkeley Macauley, Asst. Surgeon, is relieved from duty at Ft. Supply, Ind. Ter., and will report in person to the commanding officer, Ft. Lewis, Col., for duty at that station. By direction of the Secretary of War. Par. 2, S. O. 233, A. G. O., Washington, October 4, 1890.

Capt. Robert J. Gibson, Asst. Surgeon, is granted leave of absence for three months, to take effect on being relieved from duty at Ft. Trumbull, Conn., by Major Henry M. Cronkhite, Surgeon. By direction of the Secretary of War. Par. 12, S. O. 232, A. G. O., Washington, October 3, 1890.

Capt. Walter Reed, Asst. Surgeon, is relieved from further duty at Mount Vernon Bks., Ala., and assigned to duty as Attending Surgeon and Examiner of Recruits at Baltimore, Md. By direction of the Secretary of War. Par. 7, S. O. 233, A. G. O., Washington, October 4, 1890.

Capt. Arthur W. Taylor, Asst. Surgeon, is relieved from duty at Ft. Wingate, N. M., to take effect on the expiration of his present sick leave of absence, and will report in person to the commanding officer, Ft. Adams, R. I., for duty at that station, relieving Capt. J. J. Cochran, Asst. Surgeon. Capt. Cochran, on being relieved by Capt. Taylor, will report in person to the commanding officer, Camp Eagle Pass, Texas, for duty at that station, relieving First Lieut. Paul Clendenin, Asst. Surgeon. Lieut. Clendenin, on being relieved by Capt. Cochran, will report in person to the commanding officer, Ft. Brady, Mich., for duty at that station. By direction of the Secretary of War. Par. 8, S. O. 232, A. G. O., Washington, October 3, 1890.

PROMOTIONS.

Asst. Surgeon Edward R. Morris, to be Asst. Surgeon with the rank of Captain, September 27, 1890, in accordance with the Act of June 23, 1874.

Lieut.-Col. Bernard J. D. Irwin, Asst. Medical Purveyor, to be Surgeon with the rank of Colonel, August 28, 1890.

Major Blencowe E. Fryer, Surgeon, to be Asst. Medical Purveyor, with the rank of Lieut.-Col., August 28, 1890.

Capt. Stevens G. Cowdrey, Asst. Surgeon, to be Surgeon with the rank of Major, August 28, 1890.

APPOINTMENT.

Col. Edward P. Vollum, Surgeon, to be Chief Medical Purveyor, with the rank of Colonel, August 28, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending October, 11, 1890.

Wm. C. Braisted, Detroit, Mich., appointed an Asst. Surgeon in the U. S. Navy.

Medical Director P. S. Wales, detached from temporary duty as member of Medical Examining Board.

Pd. Asst. Surgeon H. E. Ames, detached from temporary duty as member of Medical Examining Board.

Surgeon C. G. Herndon, ordered to Naval Hospital, New York.

Surgeon R. C. Persons, detached from Naval Hospital, New York, and wait orders.

Pd. Asst. Surgeon H. B. Scott, ordered before the Retiring Board.

Surgeon A. F. Price, detached from Naval Dispensary, Washington, D. C.

Pd. Asst. Surgeon Frank Anderson, ordered to Naval Dispensary, Washington, D. C.

Medical Inspector C. H. White, ordered to hold himself in readiness for duty to U. S. S. "San Francisco."

Asst. Surgeon W. C. Braisted, ordered to Army and Naval Hospital, Hot Springs.

Asst. Surgeon L. W. Spratling, ordered to hold himself in readiness for orders to the U. S. S. "San Francisco."

Surgeon C. A. Siegfried, ordered to the U. S. Training Ship "New Hampshire."

Asst. Surgeon N. P. Blackwood, detached from duty in the Bureau Medicine and Surgery and granted leave of absence.

Asst. Surgeon L. H. Stone, detached from the U. S. S. "New Hampspire" and wait orders.

Pd. Asst. Surgeon Jno. M. Edgar, ordered to hold himself in readiness for duty on the U. S. S. "San Francisco."

Pd. Asst. Surgeon J. E. Gardner, detached from the "Albatross" and wait orders.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Four Weeks Ending October 4, 1890.

Surgeon W. H. H. Hutton, detailed as Chairman Board of Examiners. October 2, 1890.

Surgeon W. H. Long, detailed as member Board of Examiners. October 2, 1890.

Surgeon Geo. Purviance, granted leave of absence for thirty days. September 10, 1890.

Surgeon John Godfrey, detailed as recorder Board of Examiners. October 2, 1890.

Pd. Asst. Surgeon W. A. Wheeler, to proceed to New Orleans, La., for temporary duty, October 3, 1890.

Pd. Asst. Surgeon C. E. Banks, granted leave of absence for twenty days, October 3, 1890.

Pd. Asst. Surgeon R. P. M. Ames, to proceed to New Orleans, La., for duty, September 13, 1890.

Pd. Asst. Surgeon W. J. Pettus, to proceed to Vineyard Haven, Mass., for temporary duty, October 1, 1890.

Asst. Surgeon S. H. Hussey, to proceed to New Orleans, La., for temporary duty, September 19, 1890. To proceed to Norfolk, Va., for temporary duty, October 3, 1890.

Asst. Surgeon C. P. Wertenbaker, granted leave of absence for twenty days. September 12, 1890.

Asst. Surgeon J. C. Perry, upon expiration of leave to rejoin station at Mobile, Ala. September 29, 1890.

Asst. Surgeon G. B. Young, to proceed to Memphis, Tenn., for temporary duty, September 13, 1890. To rejoin station St. Louis, Mo., when relieved at Memphis, Tenn., October 3, 1890.